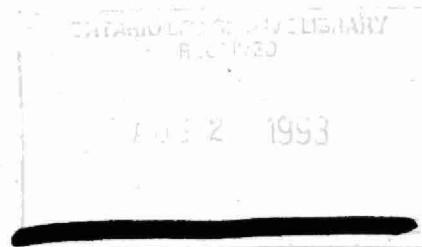


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GUIDELINE ON PLANNING FOR SEWAGE AND WATER SERVICES



This document outlines the interim position of the Ministry of the Environment (MOE). It is intended to guide the Ministry review of planning documents, and to assist in providing direction to municipalities and consultants on the requirements of the MOE in land use planning. This guideline pertains to the Ministry of the Environment mandate only. Other agencies may have requirements over and above the MOE mandate.



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JULY 1992



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1.0 STATEMENT OF PRINCIPLES

This guideline describes the Ministry of the Environment's (MOE) position on encouraging municipalities to plan for environmentally appropriate servicing infrastructure. It is also intended to encourage those forms of servicing which will support long-term government goals in the areas of environmental protection, affordable housing, urban intensification, and growth management (the control of urban sprawl).

The guideline reflects the Ministry's experience with development utilizing all types of services, including full municipal, partial municipal and individual on-site systems. In some instances, development on individual systems has resulted in groundwater contamination problems and necessitated the extension of municipal services. In others, development on individual systems in areas adjacent to fully-serviced areas has caused under-utilization of adjoining service networks and precluded front-end financing of infrastructure expansions. Overall there is concern that dispersed growth may be undermining the Provincial investment in infrastructure.

2.0 OBJECTIVES

The objectives of this guideline are as follows:

- To ensure that municipal infrastructure is planned for and utilized to the fullest to accommodate development.
- To encourage the use of communal water and sewage services where multi-unit/lot development is proposed in unserviced areas.
- To discourage the use of individual on-site sewage and water services for multi-unit/lot development.

3.0 GENERAL

The MOE encourages municipalities to direct development to areas where municipal water and sewage facilities are available, with sufficient capacity to service the proposed development, or where new services have been committed to.

4.0 SERVICING PLANS

The MOE encourages municipalities to prepare multi-year servicing plans as one component of their overall planning for growth management. Such a servicing plan may be done in support of revisions to, or the creation of, an official plan or other long-range strategic plan. The Ministry encourages municipalities to communicate with neighbouring municipalities to develop cooperative approaches to planning for and providing services.

5.0 UNSERVICED AREAS

5.1 Evaluation of Potential Development Areas

Municipalities should investigate and classify areas which may be targeted for growth but which are not served by municipal sewage and water, according to their general suitability for development. The classification should be based on an evaluation of the potential for different forms of development to degrade the quality and/or quantity of ground and surface water and create public health concerns. A preliminary evaluation should include but not be limited to an assessment of soils, groundwater and surface water conditions and use, storm drainage concerns, existing land uses and environmental features. Other evaluation factors include the availability of adequate supplies of potable water. MOE Regional Offices should be contacted to provide additional direction on individual evaluations.

These investigations (along with other concerns) should form the basis for municipalities directing such forms of development as estate residential to areas least likely to suffer adverse environmental impacts.

5.2 Mode of Servicing

It is the preference of the MOE that:

- i) multi-unit/lot development in unserviced areas occur on communal water and sewage services for which a municipality or other responsible public body must assume responsibility. Development should be clustered to facilitate the efficient installation, operation and maintenance of such communal systems (which may utilize advanced treatment);
- ii) municipalities discourage development on partial services (ie. the provision of municipal water services in the absence of municipal sewage services);
- iii) limited infill development on individual water and sewage systems be considered within an existing built-up area, only if site conditions permit and there is no suitable receiver for effluent discharge from a communal sewage facility. Limited infill development should not be permitted on individual services if there are existing or potential water quality or quantity problems as noted by the Ministry or the municipality;
- iv) municipalities maintain strict policies in their official plans regarding consents/severances to avoid negative cumulative impacts of such development. Municipalities should prohibit the creation of multi-unit/lot development by means of the consent process, as this process does not ensure the full assessment of environmental impacts of proposals prior to approval.

6.0 IMPLEMENTATION

MOE staff will implement this guideline through comments and advice supplied to municipalities, the public and approval authorities on documents circulated to them under the Planning Act. Primary emphasis will be placed on incorporating the provisions of the guideline into comments supplied on official plans and official plan amendments.

The MOE will not recommend approval for development proposed within a municipally-serviced area unless adequate municipal sewage and water capacity are available. The Ministry will not recommend approval for multi-unit/lot development on individual sewage and water services until:

- servicing options including development on communal sewage and water systems have been investigated; and,
- an impact assessment has been completed in accordance with Ministry guidelines, which demonstrates that the impacts on ground and surface water of the proposal will be within acceptable limits.

7.0 DEFINITIONS

Limited infill development:

Five or fewer units/lots of residential, industrial, commercial or institutional development.

Multi-unit development:

More than five units/lots of residential, industrial, commercial or institutional development.

GUIDELINE FOR THE RESPONSIBILITY FOR COMMUNAL WATER AND SEWAGE WORKS AND COMMUNAL SEWAGE SYSTEMS

This document outlines the interim position of the Ministry of the Environment (MOE). It is intended to guide the Ministry review of planning documents, and to assist in providing direction to municipalities and consultants on the requirements of MOE in land use planning. This guideline pertains to the Ministry of the Environment mandate only. Other agencies may have requirements over and above the MOE mandate.



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1.0 STATEMENT OF PRINCIPLES

This guideline describes the Ministry of the Environment's (MOE) position that municipalities accept responsibility for privately built communal water and sewage services. The purpose of this guideline is to protect the health and well-being of the public and environment by ensuring the long-term viability of essential communal services by requiring a public authority to have the legal responsibility for ownership and operation.

There has been a growing awareness of the environmental protection and public health advantages of:

- the use of communal water and sewage services over individual on-site services*, and
- the need for municipalities to assume responsibility for these services.

This guideline outlines the MOE's position on municipal responsibility for communal water and sewage services.

2.0 OBJECTIVES

- promote a consistent approach to responsibility for communal services, regardless of the type of communal system or approvals granted under the Environmental Protection Act (EPA) and Ontario Water Resources Act (OWRA).
- require ownership of communal services by a public authority to ensure the long-term viability of communal services to:
 - protect the health and well-being of the public and environment by providing more secure operation and maintenance,
 - avoid hardship being placed on occupants who may otherwise be inconvenienced or forced to vacate their residences as a result of failed private communal services, and
 - avoid the financial costs that may otherwise be incurred to remediate failed private communal services that are a threat to the environment and/or a hazard to public health.
- clarify the roles of MOE and local government in developments serviced by communal services, and ensure that all of MOE's mandated areas of concern are met prior to approval.

* See "Guideline on Planning for Water and Sewage Services"

3.0 APPLICATION OF THE GUIDELINE

3.1 The guideline shall apply to:

- all types of uses served by communal services which require approval under Sections 52 & 53, Ontario Water Resources Act RSO 1990, and Part VIII, Environmental Protection Act RSO 1990, or
- any other situations to be assessed on a case-by-case basis by MOE staff.

3.2 As a rule, municipal ownership will not be requested of those privately built sewage and water works and sewage systems which may be commonly referred to as "communal", but which otherwise serve:

- hotels, motels, inns, tourist homes or hostels providing solely transient accommodation,
- exclusively time-share condominiums,
- seasonal trailer parks,
- other single-owner/occupier commercial, mercantile, industrial or other operation.

In these situations, the municipality will enter into a legal agreement with the developer stipulating that the municipality will assume responsibility for the communal services should the operator fail to operate the services to the standards described in the agreement (see Appendix).

4.0 RESPONSIBILITY FOR COMMUNAL SERVICES

4.1 Organized Areas

4.1.1 Municipal Ownership, Operation and Maintenance

For those communal services within organized areas and proposed to serve the uses outlined in Section 3.1 of this guideline, MOE will require municipal ownership, operation and maintenance.

The municipality will assume ownership of privately-built communal services as soon after construction as the municipality is satisfied that the system has been constructed and is operating in accordance with the Certificate of Approval, but in no case later than one year following construction. Appropriate easements are to be provided for in the agreement between the municipality and developer where access to private property is necessary. The municipality may choose to operate the system using municipal personnel or other qualified persons under contract.

4.1.2 Municipal Ownership/Private Operation and Maintenance

In some cases a private entity may be better able to operate and maintain communal services than a municipality. This may be when a municipality lacks the qualified personnel to oversee the operation. When these circumstances arise, municipal ownership with a legal agreement for private operation and maintenance may be considered, subject to the discretion of the appropriate Regional office of MOE.

In such a case the municipality assumes ownership of the private communal services immediately following construction, along with any required easements, and enters into a legal agreement with the owner/developer of the private services to have the owner/developer operate and maintain the services. The legal agreement is to stipulate that the municipality assumes responsibility for the services should the operator fail to operate the services to the standards described in the agreement (see Appendix).

4.2 Unorganized Areas

It is the position of MOE that developments utilizing communal services should be encouraged to locate in municipalities where there are local authorities to assume responsibility for these services and undertake remedial action in the case of a default.

As a rule, the Ministry will comment negatively on proposals for new or expanded communal services in unorganized areas that are to be served by the uses outlined in Section 3.1 of this guideline. The rationale for this position is that in the absence of a municipal government organization the long-term viability of communal services, and hence the protection of the environment and public health, cannot be assured.

In situations where it can be demonstrated that the long-term viability of communal services for a proposal in an unorganized area can be assured by a responsible public authority, the MOE will consider such proposals on a case-by-case basis, subject to the discretion of the appropriate Regional office of MOE.

5.0 IMPLEMENTATION

MOE staff will implement this guideline through comments and advice supplied to municipalities, the public, and approval Authorities on documents circulated under the Planning Act.

6.0 DEFINITIONS

Communal Services/Communal Systems:

For the purposes of this guideline "communal services" or "communal systems" mean those sewage works, sewage systems and water works to be approved, or approved under Sections 52 & 53, Ontario Water Resources Act RSO 1990, or those under Part VIII, Environmental Protection Act RSO 1990 for the common use of more than five units of full-time or seasonal residential or industrial/commercial occupancy or other occupancy as determined by MOE staff.

7.0 APPENDIX

Legal Agreements

Legal agreements between a municipality and a private individual or corporation should contain financial assurance provisions which will ensure funds for operation and routine maintenance as well as a secured fund for capital improvements should repair or replacement of services become necessary. The MOE Guideline for Financial Assurance contains a guide for calculating amounts that may be exacted from a developer for this purpose.

All legal agreements should contain reference to Section 62 of the Ontario Water Resources Act. In the event of environmental or public health problems related to sewage or water service, Section 62 enables the Director to order the municipality to assume responsibility for the services and perform whatever steps are deemed necessary to prevent further problems with the services. This is to verify municipal acknowledgement of this possibility and to ensure that if the municipality approves the development it is prepared to comply with an order should one be issued.

In addition, legal agreements should generally set out the following:

- a) operating and maintenance standards,
- b) a definition of default,
- c) an outline of remedial action,
- d) financial assurance provisions,
- e) registration on title of subject property,
- f) easements, where required.

**GUIDELINE FOR CALCULATING AND REPORTING ON UNCOMMITTED
RESERVE CAPACITY AT
SEWAGE AND WATER TREATMENT PLANTS**

This document outlines the interim position of the Ministry of the Environment (MOE). It is intended to guide the Ministry review of planning documents, and to assist in providing direction to municipalities and consultants on the requirements of MOE in land use planning. This guideline applies to all water and sewage plants in Ontario regardless of ownership. It should be noted that this guideline pertains to the Ministry of the Environment mandate only. Other agencies may have requirements over and above the MOE mandate.



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1.0 STATEMENT OF PRINCIPLES

This guideline is designed to assist municipalities in determining the status of available capacity at their water and sewage treatment facilities and in monitoring this capacity on an ongoing basis. It is necessary to be able to relate plant performance and hydraulic capacity to growth management objectives to avoid future limitations on development and to allow enough time to plan for the minimum of three to five years it can take to complete plant expansions or upgrades.

Hydraulic capacity calculations are one component of strategic growth management. In addition, it is important to recognize that other factors must be considered when determining whether development can proceed prior to a plant reaching its hydraulic capacity. These include matters related to plant performance such as effluent and drinking water quality as well as Certificate of Approval requirements.

The Operating Authority is responsible for ensuring that there is adequate supply and treatment capacity in its water and sewage works and for complying with their Certificate of Approval.

The MOE, as the regulatory agency, is responsible for auditing the performance of water and sewage facilities on an ongoing basis with respect to the requirements stipulated in the Environmental Protection Act, the Ontario Water Resources Act, regulations promulgated under these Acts, the Certificates of Approval and Ministry policies and guidelines.

2.0 OBJECTIVES

The objectives of this guideline are as follows:

- To provide municipalities with a basis for determining the reserve capacity of their water and/or sewage works.
- To assist municipalities in planning for anticipated growth as it relates to the capacity of their water and/or sewage works.

3.0 GENERAL

Planning applications and proposals should not be entertained by a municipality if the uncommitted reserve capacity calculation is not available or if it indicates that there is not adequate uncommitted hydraulic capacity available at the sewage and/or water treatment plant. These applications should equally not be entertained if other limiting factors related to plant performance exist.

Favourable comments from the MOE on development proposals are contingent upon both sufficient uncommitted hydraulic capacity and acceptable plant performance.

CALCULATING AND REPORTING ON UNCOMMITTED RESERVE CAPACITY...

4.0 CALCULATING UNCOMMITTED RESERVE CAPACITY FOR SEWAGE AND WATER TREATMENT FACILITIES

In determining the performance of sewage and water treatment plants, two aspects need to be considered. These are hydraulic capacity and plant performance in relation to environmental protection as set out in Ministry legislation and policies and in the Certificate of Approval issued for the facility. Each of these matters must be considered by both the municipality and the MOE in assessing whether development proposals should be entertained.

4.1 Hydraulic Capacity

The uncommitted reserve hydraulic capacity should be calculated using the following formula:

$$Cu = Cr - \frac{L \times F \times P}{H}$$

| | | |
|----|---|---|
| Cu | = | uncommitted hydraulic reserve capacity |
| Cr | = | hydraulic reserve capacity |
| L | = | number of unconnected approved lots (see below for further explanation) |
| F | = | average per capita flow (estimated or actual) |
| P | = | existing connected population |
| H | = | number of connected households |

Note: Please refer to the definitions provided in Section 7.0 to assist you with this calculation. In exceptional cases such as seasonal population fluctuations, rapid growth and/or the existence of large industries, the Regional Director may consider it appropriate to modify the manner in which the calculation is completed. Municipalities are advised to consult their Regional MOE office if the above applies.

In calculating the reserve capacity, municipalities should ensure that:

- (a) Variable "L" represents all unconnected servicing commitments including:
 - vacant lots/units in registered plans of subdivision
 - lots/units in draft plans of subdivision
 - proposals with approved zoning for multiple residential or commercial/industrial development
 - registered plans of condominium - vacant lots created by consent in serviced areas.

CALCULATING AND REPORTING ON UNCOMMITTED RESERVE CAPACITY...

The following is an example of a calculation using the above formula where:

| | | |
|----|---|----------------------------|
| Cr | = | 12,000 m ³ /day |
| L | = | 3,000 lots |
| F | = | .45 m ³ /day |
| P | = | 25,000 people |
| H | = | 8,000 |

$$Cu = Cr - \frac{L \times F \times P}{H}$$

$$Cu = 12,000 - \frac{(3000 \times .45 \times 25,000)}{8,000}$$
$$= 7,781.25 \text{ m}^3/\text{day}$$

4.2 Factors in Addition to Hydraulic Capacity which may Limit Development Potential

4.2.1 Compliance with Certificate of Approval:

Municipalities are responsible for ensuring that they are in compliance with Ministry legislation and also with the Certificates of Approval issued for their plants. Certificates of Approval typically identify effluent limits which must be met. Failure to meet Certificate of Approval requirements limits development potential in the same way as insufficient hydraulic capacity does.

Typical examples of limiting factors established in Certificates of Approval which must be complied with are: biochemical oxygen demand (BOD), suspended solids and phosphorus.

In many cases the Certificates of Approval also specify additional parameters which require monitoring (e.g., ammonia) depending on plant process. As a result, it is of critical importance that municipalities be aware of the specific requirements of their certificates. If the Certificate of Approval specifies a sampling protocol, it must be followed. If not, please refer to the MOE policy entitled "Policy to Govern Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only)" (#08-06).

4.2.2 Ministry of the Environment Policies:

In addition to the requirements of the Certificate of Approval, there are a number of MOE policies that govern the operation of treatment facilities (e.g. Ontario Drinking Water Objectives, Treatment Requirements for Municipal and Communal Water Works Using Ground Water Sources). This Ministry recommends that these policies be followed. Failure

CALCULATING AND REPORTING ON UNCOMMITTED RESERVE CAPACITY...

to comply with these policies may result in development restrictions imposed by this Ministry. Please refer to Appendix 1 for a listing of the policies. For copies of these policies please contact the nearest MOE Regional or District Office.

5.0 ANNUAL REPORT

Municipalities shall submit an annual report to the Regional Office of the MOE, based on the calculation methods set out in this guideline. The annual report should address both hydraulic capacity and performance factors.

The annual report submitted by the municipality must be authorized by an appropriate municipal official.

After the first annual report has been submitted to the MOE, all individual applications circulated to MOE must be accompanied by written certification by an appropriate municipal official that uncommitted capacity is available.

6.0 IMPLEMENTATION

MOE staff will implement this Guideline through comments and advice supplied to municipalities, the public, and approval authorities on documents circulated under the Planning Act.

The MOE will use the annual report and written certification accompanying each application as a basis for providing comments on planning documents circulated by the approval Authority. The date of the first annual report will be determined in consultation with the MOE.

7.0 EXPLANATION OF TERMS USED IN CALCULATIONS OF HYDRAULIC CAPACITY

Sewage Treatment Plants:

Design Capacity

The design capacity is calculated in cubic metres per day. This information is available in the design report or from the Certificate of Approval. If it is not available from either of these sources, the Annual Dischargers Report can be used to determine the design capacity of the facility. This is, however, the least preferred data source and its use should be justified.

Yearly Average Day Flow

Yearly average day flow is the total flow for a calendar year divided by 365 days.

$$\text{Example: } \frac{6,431,300 \text{ m}^3}{365 \text{ days}} = 17620 \text{ m}^3/\text{day}$$

For a 3-year average: Sum of last 3 years average day flow divided by 3.

$$\frac{17620 + 19511 + 20657 \text{ m}^3}{3} = 19262.7 \text{ m}^3/\text{day}$$

Average Per Capita Flow

The average per capita flow is calculated by dividing the yearly average daily flow by the connected population. The population numbers are available from municipal census data as published in the municipal directory.

Hydraulic Reserve Capacity

Hydraulic reserve capacity is the design capacity minus the average daily flow for 3 years.

$$\text{Example: } 26,000 \text{ m}^3/\text{day} - 19262.7 \text{ m}^3/\text{day} = 6737.3 \text{ m}^3/\text{day}$$

Uncommitted Hydraulic Reserve Capacity

Uncommitted reserve capacity is the reserve capacity minus the number of registered and draft approved residential lots, multiplied by the average per capita flow, multiplied by the existing population, divided by the number of connected households.

Registered Lots

Registered lots are all the final approved and vacant residential units (i.e., condominiums).

Commercial/Industrial Lots

Sewage flows for commercial/industrial lots must be determined by the municipality. Municipalities should do this by estimating the water consumption figures for similarly sized, similar type developments and factor this information into the calculation of the uncommitted reserve capacity.

In exceptional circumstances where this is not possible, municipalities may estimate the flow with the prior approval of the Ministry. If the Ministry agrees that this is acceptable in the specific situation, the following approach may be used.

To assist in equating industrial/institutional/commercial flows to equivalent residential lots, a production/consumption rate of 100 gallons or 450 litres per capita per day of

sewage flow or water demand should be used for designing water and sewage plants. This number will vary according to municipality. Once a specific industry is identified, the municipality will have a better indication of the amount of water the industry requires or the amount of sewage flows produced. The municipality will be able to determine whether its present water or sewage works can accommodate the industry.

Industrial Dry Operations

Industrial dry operations are considered to be industries that require little or no water for processing. Examples are textile knitting, weaving or spinning (no dying or washing), printing, electrical wire & cable, metal fabrication, structural steel, etcetera.

Industrial Wet Operations

Industrial wet operations are considered to be industries that require significant volumes of water for processing. The amounts of water required for processing in wet industries varies so greatly that each industry must be assessed individually. Examples are textile dying and washing, most food processing industries, most chemical operations, metal plating, etcetera.

Draft Approved Lots

Draft approved lots are those granted approval by the Province subject to the fulfillment of certain conditions prior to final approval. Draft approval is a commitment on behalf of the province and the municipality and is interpreted as reasonable assurance that development can proceed. Capacity is considered to be committed by the Province when draft approval is granted to a development within a serviced municipality.

Water Treatment Plants

Design Capacity

The design capacity of water treatment plants is calculated on the basis of maximum day requirements (cubic metres/day) and is available in the Certificate of Approval, Water Taking Permit, the design document or design/operating manuals. In the event that the design data are not available, the actual maximum day flow from plant records over the past three years may be used provided that the treated water quality under maximum day flow conditions meets the Ontario Drinking Water Objectives. It is important to note that maximum day flow should only be used when the operating authority has knowledge of what occurred on that day.

Yearly Average Day Flow

The yearly average day flow is the total flow for a calendar year divided by 365 days.

$$\text{Example: } \frac{6,431,300 \text{ m}^3}{365 \text{ days}} = 17620 \text{ m}^3/\text{day}$$

The average day flow is used in calculating the average per capita flow.

CALCULATING AND REPORTING ON UNCOMMITTED RESERVE CAPACITY...

For a 3 year average: Sum of last 3 years average day flow divided by 3.

$$\frac{17620 + 19511 + 20657 \text{ m}^3}{3} = 19262.7 \text{ m}^3/\text{day}$$

Average Per Capita Flow

The average per capita flow is calculated by dividing the yearly average day flow by the connected population. The population numbers are available from municipal census data as published in the municipal directory.

Peaking Factor

This information is available in the design report or determined by using the design manual.

Hydraulic Reserve Capacity

The hydraulic reserve capacity is the design capacity minus the average day flow for three years multiplied by the peaking factor. The capacity of wells must be determined in order to calculate the reserve capacity for municipalities supplied by wells.

Example: $35321 \text{ m}^3/\text{day} - (14610 \text{ m}^3/\text{day} \times 1.8) - 9023 \text{ m}^3/\text{day}$

Uncommitted Hydraulic Reserve Capacity

The uncommitted reserve capacity is the reserve capacity minus the number of registered and draft approved residential lots, multiplied by the average per capita flow, multiplied by the population, divided by the number of households.

Draft Approved Lots

Draft approved lots are those lots granted approval by the approval authority subject to the fulfillment of certain conditions prior to final approval. Draft approval is a commitment on behalf of the province and the municipality and is interpreted as a reasonable assurance that development can proceed. Capacity is considered to be committed by the province when draft approval is granted to a development within a serviced municipality.

CALCULATING AND REPORTING ON UNCOMMITTED RESERVE CAPACITY...

Appendix 1

LISTING OF MINISTRY OF THE ENVIRONMENT POLICIES GOVERNING THE OPERATION OF TREATMENT FACILITIES

Policy No. 08-01 and Supporting Guidelines:

Levels of Treatment for Municipal and Private Sewage Treatment Works Discharging to Surface Waters

Policy No. 08-03:

Minimum Accepted Level of Servicing for Municipally and Privately Owned Communal Systems

Policy No. 08-04 and Guidelines:

Policy to Govern the Provision and Operation of Phosphorus Removal Facilities at Municipal, Institutional and Private Sewage Treatment Works

Policy No. 10-01:

Emergency Takeover of Facilities

Policy No. 11-01:

Use of Pesticides In and Around Water Works

Policy No. 15-03:

Provincial Water Quality Objectives for Radionuclides and Total Dissolved Solids

Policy No. 15-06:

Drinking Water Quality: Ontario Drinking Water Objectives

Policy No. 15-14:

Treatment Requirements for Municipal and Communal Water Works Using Surface Water Sources

Policy No. 15-15:

Treatment Requirements for Municipal and Communal Water Works Using Ground Water Sources

Water Management - Goals, Policies, Objectives and Implementation Procedures of the Ministry of the Environment

GUIDELINE ON SEPARATION DISTANCE BETWEEN INDUSTRIAL FACILITIES AND SENSITIVE LAND USES

This document outlines the interim position of the Ministry of the Environment. It is intended to guide the Ministry review of planning documents, and to assist in providing direction to municipalities and consultants on the requirements of MOE in land use planning. This guideline pertains to the Ministry of the Environment mandate only. Other agencies may have restrictions over and above the MOE mandate.



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1.0 STATEMENT OF PRINCIPLES

This guideline is intended to prevent the encroachment of sensitive land uses and industrial facilities on one another through the land use planning process. The guideline is an application of the MOE's Policy No. 07-03 "Land Use Compatibility".

Separation of incompatible land uses is the recommended approach. Recommended separation distances are intended to **supplement, not replace**, adequate controls at the industrial facility and to safeguard against fugitive emissions (for which there is no practical means of control), process upsets, and breakdown or malfunction of technical controls and/or spills.

The siting or orientation of the industrial facilities, or sensitive land uses in their vicinity, should take into account operational emissions including smoke, noise, dust and odour generated by loading and unloading of trucks, and odours from any on-site waste receptacles.

2.0 OBJECTIVES

- to minimize the exposure of sensitive land uses to potential adverse effects associated with industrial facilities, through the use of separation distances;
- to illustrate/characterize industrial facilities according to differences in their physical size, production volumes, the intensity, and scheduling of operations or the objectionable nature of their emissions; and
- to provide guidance where an existing designated land use is being phased out and replaced by another incompatible land use as part of a formal, large-scale land use change within a municipality (i.e., transitional urban areas).

3.0 APPLICATION OF THE GUIDELINE

The guideline applies to light, medium and heavy industrial facilities and those land uses sensitive to the possible noise, vibrations, odours, dust and other air emissions, and similar adverse effects. Appendix A lists examples of industrial facilities defined in this guideline.

4.0 GENERAL

It is the position of the MOE to recommend adequate separation distances between incompatible land uses. **The intervening lands should be of a use compatible with both the industrial facilities and the sensitive land use.**

SEPARATION DISTANCES -
INDUSTRIAL AND SENSITIVE LAND USES

The separation distance should permit the normal functioning of the two uses without unduly restricting land use. It should not be expected to eliminate all adverse effects, but it should reduce the adverse effects to levels that will minimize the cause of complaints while maximizing the quality of life.

4.1 Recommended Separation Distances for Industrial Facilities

The separation distance between the facility and the sensitive land use(s) is recommended as follows:

*Light Industrial: 60 metres (**minimum**)

Medium Industrial: 90 metres (minimum**) to 300 metres (**recommended**)

***Heavy Industrial: 300 + metres (**minimum**)

- * Less than the minimum may be acceptable where an industry's processing produces emissions or outputs which are zero to negligible, there is no outside storage, and there is a self contained process with zero to low probability of fugitive emissions.
- ** The range of 90-300 metres reflects a need to consider substantial variations in industrial processes and, therefore, the type of emissions to be considered (e.g. noise, vibration, odour, particulate and gaseous discharges or combinations thereof) and variations in intensities of these emissions from industry to industry, as well as differences in the size of operations within a given class of industry.
- *** Depending upon the overall influence area, some heavy industries (e.g. petroleum refinery, steel mill, pulp and paper mill, and copper and nickel refinery) may require a separation distance of 1,000 metres or more.

NOTE: Depending on the potential adverse effects, the minimum separation distance recommended may not be sufficient in all circumstances. Therefore, MOE may object to incompatible land uses based on the stated principles and its own experience in abatement activity rather than the minimum distances recommended above.

4.2 Measurement of Separation Distances

Depending on the situation, separation distances are to be measured from one of the following:

- the area designated for sensitive land use to the area designated for industrial use;
- the area zoned for sensitive land use to the area zoned for industrial use; or
- the property line of the closest sensitive receiver to the property line of the emission source.

4.3 Transitional Urban Areas

Transitional urban areas occur where an existing designated land use is being phased out and replaced by another incompatible land use as part of a formal, large-scale land use change within a municipality.

During the period of transition from the existing land use to the new land use, situations may be created whereby incompatible land uses are in close proximity. It may not be possible to achieve MOE's recommended separation distances between the two incompatible land uses.

In these areas of transition, as long as all existing legislative requirements can be met, **MOE will entertain studies to determine if less than the recommended separation distances can be accepted.** The studies, to be provided by the municipality, must be in support of a formal process (e.g. official plan amendment) to create a transitional urban area situation. The studies should provide for the identification of clearly defined boundaries of the transitional area and an analysis of the feasibility of the transition. Determination of technical feasibility must be based on a detailed examination of potential adverse effects expected during the period of transition and specific mitigation measures to deal with any identified adverse effects. As well, the feasibility of implementing the proposed mitigation measures must be addressed.

It should be noted that **MOE will not entertain studies aimed at providing for less than the recommended separation distances for individual properties undergoing a change in land use designation.**

5.0 IMPLEMENTATION

MOE staff will implement this guideline through comments and advice supplied to municipalities, the public, and approval authorities on documents circulated under the Planning Act.

6.0 OTHER LAND USE COMPATIBILITY PUBLICATIONS

Other MOE policies which are specific applications of the Land Use Compatibility Policy 07-03 include:

1. MOE Policy 07-05: "Compatibility Between Sewage Treatment Facilities and Sensitive Land Use"
2. MOE Policy 07-07: "Land Use On or Near Landfills and Dumps"

Other agencies' documents relevant to land use compatibility include:

1. Agricultural Code of Practice (OMAF, MOE, MOH)
2. Guidelines on Noise and New Residential Development Adjacent to Freeways (Ministry of Housing, April 1979)*
3. Land use Policy Near Airports (Ministry of Housing, March 1978)*

* This document is subject to revisions upon agreement between the Ministry of Municipal Affairs and MOE's Noise Assessment Unit, on the draft "MOE Noise Assessment Criteria in Land Use Planning" publication (LU-131). It is proposed that the Noise Assessment Unit publication will replace technical publication NPC-131 "Guidelines for Noise Control in Land Use Planning", of the "Model Municipal Noise Control By-Law" (MOE, August 1978). LU-131 provides noise assessment criteria for planning residential development adjacent to transportation facilities (i.e., railways, freeways and airports) and stationary and multiple sources of noise.

7.0 DEFINITIONS

Adverse effect:

As defined in the Environmental Protection Act:

- (i) impairment of the quality of the natural environment for any use that can be made of it,
- (ii) injury or damage to property or to plant or animal life,
- (iii) harm or material discomfort to any person,
- (iv) an adverse effect on the health of any person,
- (v) impairment of the safety of any person,
- (vi) rendering any property or plant or animal life unfit for use by man,

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- (vii) loss of enjoyment of normal use of property, and,
- (viii) interference with the normal conduct of business.

Compatible Use:

Any use that does not create adverse effects for adjacent sensitive land uses (see definition for sensitive land use) and is insensitive to, or at least highly tolerant of the adjacent land uses

Heavy Industrial Facility:

A place of business for large scale manufacturing or processing, characterized by large physical size, production volumes and intensity of use, and/or having the potential for the release of contaminants which create highly objectionable adverse effects for nearby sensitive land uses. See Appendix A for classification criteria and examples.

Industrial Facilities:

A use associated with the following three activities: the assemblage and storage of substances, goods, and raw materials; their processing and manufacturing; and the packaging and shipping of finished products. See Appendix A for classification criteria and examples.

Light Industrial Facility:

A place of business for clean, dry, small scale mechanical servicing, parts sales and/or repairs, or small scale manufacturing, warehousing, assembly lines and industrial malls/parks which produce minimal adverse effects for nearby sensitive land use. See Appendix A for classification criteria and examples.

Medium Industrial Facility:

A place of business for medium scale processing and manufacturing with heavy outdoor storage of wastes or materials and/or there is the potential for the infrequent release of hard to control emissions which create annoying adverse effects for nearby sensitive land use. See Appendix A for classification criteria and examples.

Sensitive Land Use:

A use associated with residences, schools, hospitals and senior citizen homes or other land uses such as outdoor recreational activities, where humans or the natural environment may be adversely affected by emissions from major facilities.

Transitional Urban Areas:

Areas where an existing designated land use is being phased out and replaced by another incompatible land use as part of a formal, large-scale, land use change within a municipality and as supported in studies provided by the municipality.

APPENDIX A
INDUSTRIAL CATEGORIZATION CRITERIA*

| CATEGORIES | OUTPUTS | SCALE | PROCESS | OPERATION/INTENSITY | EXAMPLES |
|------------|---|---|--|--|--|
| L | NOISE: sound not audible off property. | - No outside storage | - Self contained plant or building which produces/stores a packaged product. | - Daytime operations only. - Infrequent movement of products and/or heavy trucks. | - Electronics manuf. and repair. - Furniture repair and refinishing. - Beverages bottling. - Auto parts supply. - Packaging and crafting services. - Distribution of dairy products. - Laundry and linen supply. |
| I | DUST and/or ODOUR: Infrequent and not intense. | - Scale of plant is insignificant. | - Low probability of fugitive emissions. | | |
| G | VIBRATION: No ground-borne vibration on plant property. | | | | |
| H | | | | | |
| T | | | | | |
| M | NOISE: Sound occasionally audible off property. | - Outside storage permitted. | - Open process. | - Shift operations permitted. | - Magazine printing. - Paint spray booths. |
| E | DUST and/or ODOUR: Frequent and occasionally intense. | - Moderate level of production allowed. | - Periodic outputs of minor annoyance. | - Frequent movement of products and/or heavy trucks with the majority of movements during daytime hours. | - Metal can manuf. - Electrical production manufacturing. - Manufacturing of dairy products. - Dry cleaning services. - Feed packing plant. |
| D | VIBRATION: Possible ground-borne vibration, but cannot be perceived off property. | | - Low probability of fugitive emissions. | | |
| I | | | | | |
| U | | | | | |
| M | | | | | |
| H | NOISE: Sound frequently audible off property. | - Outside storage of raw and finished products. | - Open process. | - Continuous movement of products and employees. | - Manufacturing of paint and varnish. - Organic chemicals manuf. |
| E | DUST and/or ODOUR: Persistent and/or intense. | - Large production levels. | - Frequent outputs of major annoyances. | - Daily shift operations permitted. | - Breweries. - Solvent recovery plants. - Soaps and detergent manuf. |
| A | VIBRATION: Ground-borne vibration can frequently be perceived off property. | | - High probability of fugitive emissions. | | - Poultry processing plants. - Manufacturing of resins and coatings. - Metals manufacturing. |
| V | | | | | |
| Y | | | | | |

* NOTE: This table should not be considered a comprehensive list but is to be used to provide examples of specific industrial categories.

GUIDELINE ON PLANNING FOR THE RE-USE OF POTENTIALLY CONTAMINATED SITES

This document outlines the interim position of the Ministry of the Environment (MOE). It is intended to guide the Ministry review of planning documents, and to assist in providing direction to municipalities and consultants on the requirements of MOE in land use planning. This guideline pertains to the Ministry of the Environment mandate only. Other agencies may have restrictions over and above the MOE mandate.



JULY 1992

1.0 STATEMENT OF PRINCIPLES

This guideline describes the Ministry of the Environment's (MOE) position and requirements regarding the need to identify, assess and clean-up contaminated sites prior to their redevelopment or re-use.

Growth pressures in urban areas have resulted in an increase in the number of proposals made to redevelop sites for uses such as residential or other sensitive uses, sites used formerly for industrial, transportation or utility purposes. Contaminants may be present due to existing or previous industrial or similar uses of the sites. Sources of site contamination can include disposal of waste materials, raw material storage, residues left in containers, maintenance activities, and spills. Some commercial properties such as gasoline stations, automotive repair garages, and dry cleaning plants have similar potential. The longer a property is under industrial or similar use, the greater is the potential for site contamination. Also, a series of different industrial or like uses upon a site could potentially increase the number of chemicals which are present.

There are numerous benefits to early identification and systematic clean-up of contaminated sites. These include: avoidance of potential health or environmental hazards, protection to ground and surface water quality, determination of the suitability of the proposed use of a site, and reduction to unforeseen costs and delays in developing a site. In regard to these benefits, the MOE has two main interests as follows:

- that under a new use to a site, the public is not exposed to adverse effects, nor the environment to unacceptable degradation. The potential for human exposure is greatest under a residential use, but such danger is present to a significant degree under a range of other replacement uses including institutional or commercial uses, or a new industrial use, and can apply whether existing buildings are demolished or converted; and
- that the chemical properties of soils and other materials on the site are known prior to their removal, treatment and disposal.

2.0 OBJECTIVES

- To encourage municipalities to plan in advance for the re-use of potentially contaminated sites.
- To integrate the Ministry of the Environment's objectives, as expressed through MOE Policy 14-17 entitled "Guidelines for the Decommissioning and Clean-up of Sites in Ontario", with land use planning.

**GUIDELINE ON PLANNING FOR THE RE-USE
OF POTENTIALLY CONTAMINATED SITES**

- To identify the responsibilities of municipalities and applicants to ensure that potentially contaminated sites are identified and cleaned up prior to their redevelopment or re-use.

3.0 INVENTORIES

Municipalities are encouraged to undertake inventories of sites within their jurisdiction, in consultation with the local District Office of the MOE, where existing and past uses may have contributed to the presence of contaminants. Identification of sites as potentially contaminated should trigger a municipal request for analysis to determine the nature and extent of contamination when development of these sites is proposed.

4.0 INFORMATION REQUIREMENTS

A municipality should defer a decision upon an application for development (i.e., official plan amendment, rezoning) until notification is received from the MOE that the following has been submitted and is satisfactory to the MOE:

- documentation of present and past uses of the site and surrounding lands. Based on a review of existing records and discussions with knowledgeable persons, this historic audit should provide initial information on the types of contaminants which may have been used upon the site and their possible location;
- professional analysis of soils, and of ground and surface waters where required. The analysis should be based on all present and previous uses of the site, and should document the presence, type(s) and concentration of contaminants; and
- preparation of a remedial action plan in accordance with the Ministry's "Guidelines for the Decommissioning and Clean-up of Sites in Ontario" if the site analysis identifies the presence of contaminants in concentrations above Ministry established acceptable concentrations.

5.0 SITE DECOMMISSIONING/CLEAN-UP PROCESS

A summary of the required procedures for site decommissioning and clean-up, as outlined in the Ministry's "Guidelines for the Decommissioning and Clean-up of Sites in Ontario", is provided in Appendix A. When considering making application for planning approval, the proponent of site re-use should contact staff of the MOE's local District Office to discuss probable site analysis and clean-up requirements.

6.0 IMPLEMENTATION

MOE staff will implement this guideline through comments and advice supplied to municipalities, the public, and approval authorities on planning documents circulated under the Planning Act.

It is incumbent upon the municipality and the applicant to ensure that all sites which may be contaminated are investigated thoroughly, and that a legally binding commitment to any clean-up needed is made before proposed development is approved.

Following receipt and acceptance by the MOE of the information requirements identified in section 4, the municipality should ensure that any required official plan amendment includes policies which specify that:

- a qualified person shall be on-site throughout the duration of excavation and soil handling activities to ensure that the site is cleaned up in accordance with the MOE's policy entitled "Guidelines for the Decommissioning and Clean-Up of Sites in Ontario"; and
- prior to any development occurring upon the site, a qualified person shall undertake a verification sampling program and shall certify to the satisfaction of the MOE that the site has been made suitable for the use proposed.

Where no official plan amendment is required and a draft plan of subdivision has been submitted, the approval Authority should include conditions of draft approval which specify that:

- a qualified person shall be on-site throughout the duration of excavation and soil handling activities to ensure that the site is cleaned up in accordance with the MOE's policy entitled "Guidelines for the Decommissioning and Clean-Up of Sites In Ontario";
- prior to final approval of the plan, the MOE shall receive confirmation by a qualified person that a verification sampling program has been undertaken and has established that the site has been made suitable for the use proposed; and
- the subdivision agreement will contain any matters which may be deemed necessary as a result of the decommissioning activities.

The MOE will not normally comment upon a proposed zoning by-law amendment for which an official plan amendment is not required. However, municipalities should ensure that clean-up procedures are followed in the manner described above. Further, in these circumstances, the proponent of development should be directed to contact the local MOE District Office to

**GUIDELINE ON PLANNING FOR THE RE-USE
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discuss site analysis and clean-up requirements. Use of the holding symbol "H" in conjunction with passage of the zoning by-law amendment, pursuant to Section 36 of the Planning Act, may be appropriate following submission and acceptance by the MOE of the study report. The holding provision should apply until the municipality is notified by the Ministry that a verification sampling program has been completed, and that the site has been made suitable for the proposed new use. District Office staff will be the MOE contact point throughout this process.

Municipalities should adopt supportive official plan policies to guide decision making on site re-use matters, and to ensure that sites are cleaned up in accordance with MOE criteria. These actions should be integrated through the planning and development process.

7.0 DEFINITIONS

Clean-up

The restoration of a contaminated site to ensure the protection of human health and the environment.

APPENDIX A

USER GUIDE TO THE MINISTRY OF THE ENVIRONMENT DECOMMISSIONING GUIDELINES

USER GUIDE TO THE MOE DECOMMISSIONING GUIDELINES

1.0 STATEMENT OF PRINCIPLES

This document is a companion to the MOE "Guidelines for the Decommissioning and Cleanup of Sites in Ontario, May 1990" (the Guidelines). It outlines the process and approval mechanisms that are readily acceptable to the MOE.

2.0 OBJECTIVE

To assist proponents and staff to understand the Guidelines and their implementation.

3.0 SITE DECOMMISSIONING OR CLEAN-UP

3.1 MOE ROLE

For most site decommissioning or clean-up activities, the **MOE District Abatement Office** is the "window" to the Ministry where activities and responses are co-ordinated. As a commenting agency in the administration of the Planning Act (PA), the MOE Regional Planning Units become the "window" when an official plan amendment or plan of subdivision is proposed for a site which may require decommissioning or clean-up. The planning unit co-ordinates internal consultation with MOE offices, including the District Abatement Office. Procedures for site decommissioning or clean-up are the same whether the District Abatement Office or the Regional Planning Unit serve as the primary contact.

MOE administers the Environmental Protection Act (EPA), Ontario Water Resources Act (OWRA), and Environmental Assessment Act (EAA), in exercising its mandate to protect the environment and human health and safety. Proponents are required to consult with MOE to obtain environmental approvals required by the legislation when undertaking decommissioning or clean-up activities. MOE staff will provide guidance to proponents at each stage of the process as requested.

MOE has no statutory authority to issue a formal environmental approval for the completion of work following the final phase of a site decommissioning or clean-up. If requested, MOE, through the District Abatement Office, will issue a statement which describes the work completed and the level of decommissioning or clean-up achieved. As well, where a site being cleaned-up is a former waste disposal site, the Minister has the authority to issue an approval under EPA s. 46 for the proposed land use.

3.2 DECOMMISSIONING PROCEDURE

Table I, attached, serves to illustrate the approach to decommissioning and site clean-up as outlined in the Decommissioning Guidelines. This road map to the process may be used by proponents to achieve their desired goals. In general, it requires the proponent to undertake a logical process which follows four, generalized phases:

- Phase I - characterize and map the contamination and determine clean-up criteria to be achieved
- Phase II - design a remedial work plan and upon agreement with the MOE, implement it
- Phase III - carry out verification testing
- Phase IV - document the results

In accordance with the Guidelines, there are three methods of site decommissioning or clean-up that are generally acceptable to MOE:

- a) on-site management (reuse, recycle, treat, store, thermal destruction);
- b) off-site management (reuse, recycle, treat, store, dispose); and
- c) on-site isolation in an approved facility.

Each of these methods has advantages and disadvantages; determination of the preferred method for a given undertaking depends on factors too numerous to analyze herein. However, it should be noted that longer processing times will be required for environmental approvals where complex and/or unusual remedial methods are proposed.

3.3 APPROVALS REQUIREMENTS

Table II, attached, is not exhaustive but summarizes the approvals which **may** be required for a variety of decommissioning or clean-up projects. Proponents should contact the local MOE District Office for details on the approvals and requirements which will apply to specific undertakings and to best determine the time required to obtain them.

As an example, the EAA uses a formal process to assess and compare the alternatives to an undertaking, and the alternative methods of completing the undertaking. Public consultation is a requirement of the process and it may take several years to complete.

Similarly, some approvals as stipulated by the EPA require a public hearing. This may require additional time. When approvals are required under the EPA but a hearing is not required, shorter time frames are possible. The time needed to process approvals stipulated by the EPA and OWRA, exclusive of the hearing process, will vary depending on, among other things, the completeness of the applications for approvals, and on the complexity of the proposal.

For the three approaches to site decommissioning or clean-up that are outlined in the Guidelines, environmental approvals that may be required are summarized as follows:

a) ON-SITE MANAGEMENT (On-Site Treatment)

As a minimum, approval under Part V EPA (R.S.O.1990) is required. A discretionary hearing may be held. Approvals under EPA and other legislation that may be required include:

- Waste Disposal Site (Processing) - Part V EPA
- Waste Disposal Site (Transfer) - Part V EPA
- Air Approval - Section 9 EPA
- OWRA

b) OFF-SITE MANAGEMENT (Excavation and Disposal)

Experience shows that this is often the method of choice. If a disposal site with an existing approval can be found, it may be the most expeditious method of site decommissioning or clean-up. Approvals under EPA (R.S.O.1990) and other legislation that may be required include:

- Certificate of Approval (Waste Management System) - Part V EPA
- Certificate of Approval (Landfill) - Part V EPA
- Air Approval - Section 9 EPA
- Generator Registration
- OWRA

c) ON-SITE ISOLATION

MOE considers on-site isolation of contaminated soils as creation of a waste disposal site. As a result, soils with levels of contamination that would cause them to be defined as hazardous waste (Ontario Regulation 309), or which are defined as non-hazardous but which constitute more than 40,000 cubic metres, require EAA approval.

All others require approval under EPA Part V and a hearing is discretionary. Other approvals that may be required include:

- Waste Disposal Site (Processing) - Part V EPA
- Waste Disposal Site (Transfer) - Part V EPA
- Air Approval - Section 9 EPA
- OWRA

3.4 ESTABLISHING DECOMMISSIONING OR CLEAN-UP CRITERIA

An essential component in undertaking site decommissioning and clean-up activities is establishment of appropriate clean-up criteria. The Guideline provides a process where local background levels, Upper Limits of Normal (ULN) and MOE established criteria for selected parameters may be used in this site specific exercise. The ULNs are provincially representative background criteria.

MOE is working to establish criteria for additional parameters which will be protective of human health and the environment. However, proponents must frequently proceed in the absence of specific MOE criteria. **In such circumstances, proponents may propose interim criteria for use, accompanied by the source and scientific rationale.** MOE will consider use of interim criteria developed by other agencies such as the World Health Organization, US-EPA, CCME, other Canadian Provinces, etc. In all cases, the proposed interim criteria must meet MOE guidelines and regulatory requirements and are considered site specific.

The scientific rationale for an established criteria may in part be based on a risk assessment. The technical details of the assessment will be examined to determine acceptability of the developed criteria. The use of risk assessment for establishing criteria is acceptable to the MOE.

Risk assessment may also be used to develop site specific risk management options. These options may involve material management scenarios **other than the complete removal of contaminants through treatment or excavation.** Use of risk assessment for this purpose, and proposal of subsequent management options is not entertained by the MOE.

3.5 PUBLIC CONSULTATION

While optional, a public meeting should be held at each phase of the decommissioning process. It is MOE policy that the Public be informed of the undertaking with opportunity to consult meaningfully on the proposed undertaking. In most situations, environmental decisions are better, and more easily made in the context of good consultation with the public. Consultation with the public will also serve to minimize public opposition to a proposal. This can be a tool to minimize delays in an undertaking.

Table I
Decommissioning Process Flow Chart

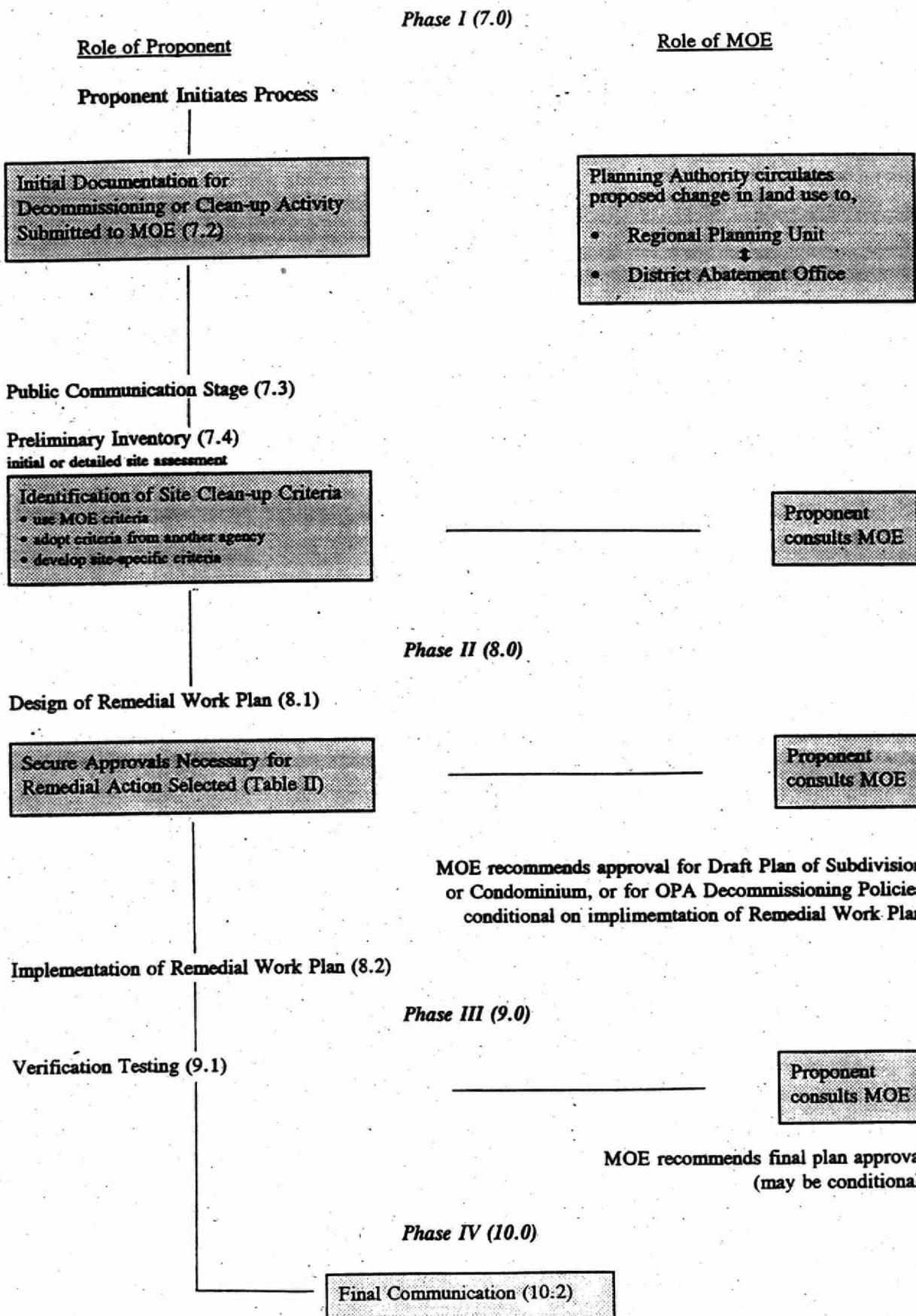


Table II
Ministry of the Environment Approval Requirements
for Site Decommissioning and Clean-up Activities

| SITE DECOMMISSIONING/ CLEAN-UP ACTIVITY | ENVIRONMENTAL PROTECTION ACT | | | | | ONTARIO WATER RESOURCES ACT ² | ENVIRONMENTAL ASSESSMENT ACT ³ | | |
|--|---|--|-----------------|--------------|------------------------------------|---|---|----|--|
| | SECTION 9 AIR APPROVAL ¹ | PART VI | | PART VIII | WASTE GENERATOR REGISTRATION | | | | |
| | | WASTE SITE | WASTE SYSTEM | | | | | | |
| Excavation of contaminated soil/on-site demolition | Possible | No | No | | Possible | Possible | Possible | No | |
| Disposal of contaminated soil to approved off-site facility | No | No | Yes | | Possible | Possible | No | No | |
| Establishing landfill facility for disposal of contaminated soil • haz waste/liquid • non-haz solid $\geq 40,000\text{m}^3$ ⁹ < 40,000 m^3 ⁹ | Possible Possible Possible | Yes ⁷ Yes ⁷ Yes ^{4,7} | | | | Possible Possible Possible | Yes Yes Possible ³ | | |
| Establishing a storage/transfer facility for contaminated soil • ≥ 300 tonnes per day ^{1,9} • < 300 tonnes per day ^{1,9} | Possible Possible | Yes ⁷ Yes ^{5,7} | | | | Possible Possible | Yes Possible ³ | | |
| Establishing a permanent facility for treatment of contaminated soil • ≥ 200 tonnes per day ^{1,9} • < 200 tonnes per day ^{1,9} | Possible Possible | Yes ⁷ Yes ^{5,7} | | | | Possible Possible | Yes Possible ³ | | |
| Establishing a mobile facility for treatment of contaminated soil | Possible | Yes ^{6,7} | Yes | | | Possible | Possible ³ | | |
| Establishing groundwater treatment/disposal systems | Possible | | Possible | Possible | Possible | Yes ⁸ | | | |

1 Section 9 Air Approval required for any activity discharging airborne contaminants to the natural environment.

2 11/82 Approval required for management of PCB wastes.

3 EAA applies to all provincial waste facilities unless specifically exempt; municipal waste facilities or activities as required by the municipal regulation made under the EAA (ie. any site requiring a mandatory hearing under Part VI of the EPA is also subject to the EAA; private sector waste proposals designated by the Minister; and any proposal designated by the Minister).

4 Mandatory hearing if waste to be landfilled is equivalent to the waste of 1,500 persons or more; discretionary hearing if waste is less than 1,500 person equivalent.

5 Public hearing is at Director's discretion.

6 Public hearing not required.

7 EAA approval will result in EPA Part VI approval.

8 Permit to Take Water is required if pumping greater than 50,000 Litres/Day. Discharge point will dictate if OWDO, PWQO or sewer use by-law requirements are to be met.

9 These numbers are used as a general guide and may be subject to change.

TECHNICAL GUIDELINE FOR WATER SUPPLY ASSESSMENT FOR SUBDIVISION DEVELOPMENTS ON INDIVIDUAL PRIVATE WELLS

This document outlines the interim position of the Ministry of the Environment (MOE). It is intended to guide the Ministry review of planning documents, and to assist in providing direction to municipalities and consultants on the requirements of MOE in land use planning. This guideline pertains to the Ministry of the Environment mandate only. Other agencies may have requirements over and above the MOE mandate.



JULY 1992

1.0 STATEMENT OF PRINCIPLES

This guideline describes the Ministry of the Environment's (MOE) position regarding the assessment of water supplies for subdivision developments on individual private wells. It is based on MOE experience with development utilizing individual wells and reflects the need to ensure that future owners of lots or homes have a high probability of being able to obtain water for domestic consumption of acceptable quality and in adequate quantities in both the short and long term.

This guideline is presented with the understanding that the municipality has performed an assessment of servicing alternatives and that the use of individual private wells is appropriate. (Please refer to the MOE "Guideline on Planning for Sewage and Water Services".)

MOE Policy No. 15-06, "Drinking Water Quality: Ontario Drinking Water Objectives (ODWO)", is made under the authority of the Ontario Water Resources Act (OWRA). The Policy deals with the protection and enhancement of drinking water quality as described in the document entitled "Ontario Drinking Water Objectives" (Ontario Ministry of the Environment, 1983). The primary purpose of Policy 15-06 is to protect public health and encourage the provision of aesthetically pleasing water. Water intended for human consumption must not contain any disease-causing organisms or hazardous concentrations of toxic chemicals or radioactive substances. Aesthetic considerations also provide a basis for drinking water objectives since the water should be pleasant to drink.

Unlike municipal and large private communal water supplies, a water supply supplying five or fewer private residences is not required to achieve strict compliance with all the Ontario Drinking Water Objectives. However, "it is desirable that the quality of water from these supplies should not be inferior to that supplied to the public in general".¹ This policy statement and OWRA, RSO 1990, subsection 29(1), which states: "for the purposes of this Act, the Minister has the supervision of all surface waters and ground waters in Ontario", oblige the MOE to comment on the quality of private water supplies which are part of development proposals submitted to the MOE for review.

Information relating to communal water supply and septic systems and impact assessments for proposals involving individual septic systems is also available from the MOE office in your region. Where both impact and water supply assessments are required, relevant findings in one assessment must be addressed in the other.

¹ See page 5 of "Ontario Drinking Water Objectives", Ontario Ministry of the Environment, 1983.

2.0 OBJECTIVES

The objectives of this guideline are as follows:

- to provide technical guidance to professional hydrogeological consultants in assessing groundwater quality and quantity;
- to provide an interpretation of the application of MOE policy to individual private well water supplies; and
- to ensure that proposals are submitted with the required technical support.

3.0 APPLICATION

The guideline applies to all official plan amendments and subdivision proposals for residential development involving individual well water supplies, within organized areas of the Province. It may also be applied to development proposed in unorganized areas.

The guideline also applies to a development for which a plan of condominium is required and may apply to an industrial, commercial or institutional development where water is used for human consumption. Please contact your local MOE office for information on the applicability of the guideline to a particular development of this type.

4.0 INFORMATION REQUIREMENTS

4.1 General

A hydrogeological study must be performed and a report submitted to the MOE at the time of circulation of the official plan amendment or plan of subdivision by the approval Authority for all proposals involving individual well water supplies. The report must address concerns relative to the following:

- There must be a high probability that the future residents will be provided with water for domestic consumption that is of acceptable quality and in adequate quantities over the long term.
- Appropriate well construction techniques must be employed in order to minimize the possibility of well water quality degradation.

There must be a minimal probability that well water in the subdivision will be affected by sources of contamination on site or on adjoining lands, or that there will be water use conflicts between users in the subdivision and users on adjoining lands.

With respect to **quantity**, each future domestic well must provide sufficient water for normal domestic purposes. If groundwater heat pumps (i.e., heat pumps which extract groundwater from the subsurface) are to be used in the subdivision now or at any future time, the study must show that there will be sufficient water for normal domestic supply as well as for the heat pumps for all the residences in the subdivision. Where treatment systems which require significant additional amounts of water are to be employed, these amounts must be added to the yield required of the wells.

With respect to **quality**, each future domestic well must provide water that is safe and aesthetically suitable for human consumption. Water samples must be obtained from test wells and analyzed for relevant water quality parameters (see sections 4.4.1 and Appendix A for more information). The suitability of the water for domestic use is determined by comparing the analytical results with relevant drinking water quality objectives.

After its initial review of a hydrogeological study report, the MOE may address requests for additional information or recommendations that further work be done to the consultant and the proponent. These must not be construed as conditions of approval but rather as suggestions for those cases where the proponent wishes to continue to pursue approval. The final responsibility for determining what further investigations may be necessary and for advising the proponent on the feasibility of the proposed development rests with the consultant. Ultimately, it is the hydrogeology of the site itself which will determine whether or not a proposal is acceptable.

(Note: MOE will return to the proponent or consultant incomplete or preliminary reports.)

4.2 Test Well Requirements

Test well requirements must be determined on a site-specific basis. The following are recommended:

- i) a **minimum** of three test wells or of one test well located **on** each 5-hectare portion of the site, **whichever is greater**, are required (except where existing wells on adjacent property are used as test wells - see below); in areas where groundwater quantity or quality are considered marginal with respect to domestic requirements, as many as one test well per lot may be required;
- ii) the areal distribution of test wells must be such that hydrogeological conditions across the site are adequately represented; depending on the areal configuration and hydrogeological complexity of the site, more than the minimum number referred to in

section i) may be required; where past or present land uses on or adjacent to the site may affect water quantity or quality, test wells must be strategically located in order to address their impact;

- iii) the test wells must be located and constructed in such a way as to permit the prediction of the quantity and quality of groundwater supplies which domestic wells will supply in the future; accordingly, the construction of these wells must be typical of wells which will be used in the subdivision in the future and must comply with Ontario Regulation 612/84, with other jurisdictions' requirements and with any additional specifications recommended by the consultant and MOE.

Existing water wells located on site or on property immediately adjacent to the site may be used as test wells. However, **these wells must fulfil requirements ii) and iii) above and must be fully incorporated into the well water quantity and quality testing programs described in the sections below**. The portion of the site which they are intended to represent must be justified relative to requirement i) above. The use of existing wells and of the data obtained from them **must be justified in the report as being technically appropriate**. However, there must be at least one test well, new or existing, located on site.

If the consultant properly locates and constructs the test wells, or if there are pre-existing wells on the property, the developer may use them later as domestic water wells. They must, however, yield potable water and meet the construction requirements indicated in the subdivision agreements. If any such wells are not to be maintained for future use, they must be properly abandoned as required by Ontario Regulation 612/84; abandonment must be recommended in the hydrogeological study report and must be implemented by the development agreement.

4.3 Well Water Quantity Testing

Each of the test wells must be subjected to a pumping test. The tests must be done sequentially, using the other wells as observation wells. The report must contain all well logs, Water Well Records, pumping test data and graphs and must discuss the sustainability of domestic well yields, the potential for supply interference and site aquifer characteristics such as hydraulic gradient, transmissivity and boundary conditions. (Note that, in most cases where septic systems are proposed, the impact assessment requires a determination of the hydraulic gradient.)

The following pumping test procedure is recommended:

- the test wells must be fully developed prior to the pumping test; subsequent test pumping at rates greater than the "calculated rate" (see discussion below) or of a duration longer than appropriate in order to achieve transient changes in water quality will result in data that are not representative of future domestic wells;

the pumping test must begin with a static water level and must be performed at the calculated rate ($\pm 5\%$) for a minimum period of six hours² (longer where supplementary storage systems are necessary); water levels must be monitored in the test well and observation wells; water must be discharged at an appropriate distance from the test wells to ensure that artificial recharge does not occur;

immediately following the pumping test, water level recovery must be monitored in the test wells until 95% recovery occurs or for 24 hours, whichever is less; where sufficient recovery does not occur, the issue of the long-term safe yield of the aquifer is especially significant.

The particular rate and yield required for a particular subdivision must be calculated as follows:

The per-person requirement shall be 450 litres per day. Peak demand occurs for a period of 120 minutes each day³. This is equivalent to a peak demand rate of 3.75 litres/minute for each person. The basic minimum pumping test rate is this rate multiplied by the "likely number of persons per well" which, for a single family residence, shall be the number of bedrooms⁴ plus one.

Except where systems to compensate for low well yield are proposed, the **minimum** pumping test rate and the **minimum** required yield are 13.7 litres per minute.

Where a test well can safely provide water at the calculated rate, it is not acceptable to conduct pumping tests at low rates and subsequently recommend the use of systems to compensate for low well yields simply in order to limit the migration of poorer-quality water into the well.

Where preliminary results indicate that the pumping test rate cannot be sustained in the long-term, the issue of the long-term safe yield of the aquifer is especially significant. Consideration may be given to systems to compensate for low well yields. In this case, the

² The minimum duration of six continuous hours incorporates safety factors with respect to seasonal variables.

³ Refer to page 5 of the MOE publication entitled "Water Wells & Ground Water Supplies in Ontario", 1989. The per-person daily demand used here is the upper limit of the estimated range.

⁴ Unless it is otherwise established to MOE's satisfaction, four bedrooms shall be used in the calculation.

rate of test pumping may be decreased but the duration must be proportionately increased such that the total amount pumped equals the amount that would have been pumped if the test had been conducted using the procedures and minima discussed above. The yield requirement must then be applied to the well and to the compensatory system on a daily basis. These systems and any special water treatment devices that may be necessary for their proper functioning must be fully described in the report.

Whether or not systems to compensate for low yields are required, the report must prove that future domestic wells will sustain repeated pumping at the test rate and duration at 24-hour intervals over the long-term.

If groundwater heat pumps are to be allowed in the subdivision, their **maximum** cold or hot weather rates must be added to the rate determined above. Similarly, if treatment systems which require additional amounts of water for their operation are to be used, those rates must be added.

Consultants must address the issue of whether the groundwater withdrawals in the proposed development and other existing or planned developments in the area will exceed the long-term safe yield of the aquifer or significantly decrease baseflow to sensitive water courses (trout streams, etc.).

Where there are established subdivisions in the vicinity, information from residents and other sources regarding well yield problems (water shortages, replacement wells, etc.) and any sensitive water courses should be obtained.

Consultants must provide a statement indicating that, in their professional opinion, the probable well yields determined on the basis of their investigations are representative of the yields which residents of the subdivision are likely to obtain from their wells in the long-term.

4.4 Well Water Quality Testing

4.4.1 Raw Water Quality

At least one set of samples must be obtained near the end of each pumping test and analyzed in order to determine the chemical and bacteriological quality of the water. The results of chlorine residual tests performed at the well head at the same time that bacteriological samples are obtained must be reported. The consultant should obtain earlier samples and have them analyzed in the event that information on trends in water quality is required.

Where there are established subdivisions in the vicinity, information from residents and other sources regarding water quality problems should be obtained. (If individual septic systems are proposed and there are existing down-gradient wells near the property boundary, sampling

and analysis for the nitrogen cycle may be required for the purposes of the impact assessment.)

Consultants must provide a statement indicating that, in their professional opinion, the water quality determined on the basis of their investigations is representative of the quality of the water which residents of the subdivision are likely to obtain from their wells in the long-term.

The minimum suite of parameters for which analyses must be performed, along with their drinking water quality limits, are listed in Appendix A, Tables 1, 2 & 3. If conditions specific to the site or its surrounding area suggest that other parameters may be relevant (heavy metals, pesticides, etc.), these other parameters must be added to the list. The report must evaluate whether the list of parameters examined in the study is sufficiently comprehensive to fully characterize groundwater quality for the particular site or area. Complete documentation of sampling times, of any on-site analytical methods and of all analytical results must also be included in the report.

The Tables list parameters which have Health and Aesthetic objectives under Ontario drinking water quality policy or which are useful in characterizing water chemistry. For health parameters (except sodium), compliance with the drinking water quality limits is mandatory.

4.4.2 Treatment Systems

For some Aesthetic parameters, the drinking water quality limit may be exceeded provided that domestic treatment systems are available which can adequately remove these parameters **from the entire water supply entering the residences** to a level below the relevant drinking water quality limits. Table 3 in Appendix A lists Aesthetic parameters, the limits for treatment and some comments on treatment methods. The limits for treatment and the comments on treatment have been developed by the MOE's Water Resources Branch.

If the raw water from the wells exhibits values for Aesthetic parameters that are above the drinking water quality limits but below the treatment limits, or if supplemental storage systems are proposed which require special treatment systems, the municipality's assent to development based on treatment systems must be obtained prior to submission of the hydrogeological report to MOE. As mentioned in section 5, a copy of a Resolution of Council must be appended to the report.

Below are some criteria which could be used to determine whether a treatment system is "reasonable". These criteria and the comments on treatment listed in Table 3 are provided for the purpose of assisting applicants and municipalities in deciding whether development based on treatment systems should proceed. It is the applicant's responsibility to satisfy the municipality that proposed treatment systems are appropriate. MOE staff will not be commenting on the acceptability of the various treatment systems available.

Some criteria which should be considered with respect to treatment systems are:

- capital and maintenance costs should be reasonable;
- there should be no excessive space requirement for the equipment;
- there should be no excessive demand for water to operate the system, such as for back-washing;
- there should be no excessive requirement for the monitoring of water quality or for system maintenance; and
- the systems should be in relatively common and widespread use.

The treatment systems mentioned in Table 3 are suggested for treatment for single parameters. Where treatment for more than one parameter is required, the systems suggested may not be appropriate due to treatment process interferences. In this case, the consultant should obtain and document a professional opinion regarding the type of system required.

In all cases, the **entire** water supply entering the residence must be treated and the **treated** water must satisfy all the drinking water quality objectives.

(Note: Where health-related water quality limits or treatment limits have been exceeded, the areas which the relevant test wells represent may have to be excluded from the proposed development site; in this case a justification for the selection of the boundary of the site is required.)

4.5 Well Construction

Construction specifications for future domestic wells in the subdivision must be addressed by the consultant in the hydrogeological report. Minimally, the construction of both the test wells and future domestic wells must comply with Ontario Regulation 612/84 made under the Ontario Water Resources Act and with municipal requirements where these are in force. Where septic systems are proposed, or where they already exist on adjacent property, protection of the wells from contamination by effluent must be addressed.

The consultant or the MOE may wish to recommend additional site-specific construction criteria. In studies where consultants' initial findings show that water quality or quantity standards cannot be met without special well construction specifications, the initial data which led to these conclusions must be included in the report. The structure of the test wells on which the final quantity and quality data are based must meet these specifications and the wells must be tested according to the procedures stipulated in this Guideline in order for the data to be deemed representative.

Section 13 of Ontario Regulation 612/84 requires that wells be constructed such that the casing of a drilled well protrudes at least 30 centimetres above ground surface or above the floor of a well pit. Well water contamination caused by the entry at the well head of water originating at or near the surface may occur if the well head is buried. Subsection 20(3) requires that the well owner maintain the well in a manner sufficient to prevent such contamination. Where well heads are buried, locating, inspecting and servicing the well are difficult and expensive.

Section 13 and subsection 20(3) are often contravened when, after a well is constructed, contractors or residents bury the well head for reasons of convenience or aesthetics. Contractors and residents should be reminded of the intent and requirements of these portions of the Regulation and of their responsibility to ensure that the finished grade of the ground surface allows the casing to protrude the required distance and prevents ponding at the well head or, in the case of well pits, prevents flooding of the pit.

4.6 Land and Water Use Conflicts

Land uses on or within 500 m of the site must be described. Where wells exist on or adjacent to the site, a survey of well owners and sampling and analysis of well water should be performed and reported. Where there have been, are, or may in the foreseeable future be significant potential sources of groundwater contamination (old, operating or proposed waste disposal sites, road salt storage facilities, farming activities, locations of contaminant spills, etc.) or potential causes of quantity interference with groundwater resources or well water supplies (municipal wells, dewatering activities, etc.) on or within 500 metres of the site, the potential for an impact on the subdivision must be addressed. The issue of whether additional water quality parameters should be included in the testing must be addressed.

4.7 Phased Developments

Where a subdivision application relates to an **additional phase** of a phased development, even though previous phases may already have been approved on the basis of previous hydrogeological studies which encompassed those phases or the entire site, a supplementary study and report is required. Water samples from wells that are located on nearby developed lots in previous phases and that are **in use** must be analyzed for the required parameters and the well owners must be interviewed regarding their experience of their well water quantity and quality. This information, as well as the Water Well Records and a map showing the locations of all wells in previous phases, must be provided. The original hydrogeological report must be re-assessed in light of the new information obtained and according to any **new** criteria or guidelines which may not have been in effect at the time of the original study. Where well water quality or well yield in the previous phases are not comparable to that found in the original test wells or predicted by the original hydrogeological study, the new study should investigate and explain the causes and provide new recommendations based on a

re-assessment of the original report. Where new guidelines require information which is not included in the original report, the new report must provide it.

If the new phase does not contain test wells from the original study, new ones must be installed. Where additional study involving new test wells is necessary, most or all of the criteria set forth in this Guideline will apply. Consultants should discuss these issues with MOE staff before proceeding.

5.0 IMPLEMENTATION

Ministry of the Environment staff will implement this guideline through comments and advice supplied to municipalities, the public, and approval authorities on documents circulated under the Planning Act.

Where groundwater of adequate quality and quantity is demonstrated to be available to service the proposed development, the MOE will require as a condition of final approval that the MOE receive a copy of a fully-executed subdivision/condominium agreement or other suitable development agreement between the municipality and the developer that requires that the recommendations of the hydrogeological report as approved by the MOE (or its agents) be implemented. The municipality should ensure that MOE comments have been adequately addressed within the fully-executed agreement.

With respect to water quantity, the MOE will review the data, interpretations and recommendations given in the hydrogeological report and comment on whether sufficient water is available for normal domestic use and other proposed uses. The MOE will not recommend approval for an official plan amendment or a draft plan of subdivision/condominium unless the MOE (or its agents) is satisfied that the hydrogeological report demonstrates that sufficient water is available.

If there is insufficient water for both normal domestic uses and groundwater heat pumps, or if the issue of groundwater heat pumps is not addressed in the report, MOE will request that a condition be placed on the subdivision agreement indicating that it is not approved for groundwater heat pumps.

This Guideline discusses the possibility of using systems to compensate for low well yields (for example, controlled pumping to supplementary storage). However, it is the municipality's responsibility to decide whether development on the basis of such systems should be allowed. If the municipality agrees to their use, notification must be given through the subdivision agreement between the municipality and the owner(s). The municipality also shares responsibility for ensuring that the terms of the subdivision agreement are carried out. Accordingly, where these compensatory systems are required, a copy of the municipality's Resolution of Council specifically assenting to their use in the subdivision must be appended to the hydrogeological study report.

With respect to water quality, the following will apply:

- Where Health and Aesthetic criteria are met, MOE will comment favourably on approval of the Official Plan Amendment or on draft approval of the Plan of Subdivision/Condominium.
- Where Health criteria are **not** met, MOE will recommend **against** approval of the proposal on the basis of individual wells.
- Where Health criteria are met **but** Aesthetic objectives are exceeded, it may be possible to use in-home water treatment systems to reduce the values of the Aesthetic parameters to a level below the limits and thereby meet the objectives.

This guideline lists maximum concentrations considered reasonably treatable for several Aesthetic parameters and some possible treatment systems (see section Appendix A) as well as criteria which could be used to determine whether a particular treatment system may be considered "reasonable" (see section 4.4.2). However, it is the municipality's responsibility to decide whether development on the basis of in-home treatment systems should be allowed. If the municipality agrees to the use of in-home treatment systems, notification must be given through the subdivision agreement between the municipality and the owner(s). The municipality also shares responsibility for ensuring that the terms of the subdivision agreement are carried out. Accordingly, where treatment systems are required, a copy of the municipality's Resolution of Council specifically assenting to the use of treatment systems in the subdivision must be appended to the hydrogeological study report.

- Where Health objectives are exceeded or where treatment limits for Aesthetic objectives are exceeded or where it is not reasonable and practical to utilize in-home water treatment systems, the local municipality and the approving authority should only consider development on the basis of a communal water system. MOE approvals are required for Water Works as defined under the Ontario Water Resources Act. MOE Policy 15-15, "Treatment Requirements for Municipal and Communal Water Works Using Groundwater Sources", applies. The municipality shall assume ownership of and responsibility for the water works on completion.

6.0 DEFINITIONS

Individual wells:

Private water wells supplying five or fewer residences (or the equivalent for other types of development) are referred to in this guideline as "individual wells".

APPENDIX A

GROUNDWATER QUALITY PARAMETER TABLES

Published documents have been the main source of information regarding the water quality limits appearing in the tables below. Exceptions to this practice have been made in the cases of E. coli and methane; see Tables 1 & 3, respectively.

When new water quality limits are formally instituted by the relevant authority, this guideline will be updated and an effort will be made to distribute the new requirements to interested parties. However, IT IS THE RESPONSIBILITY OF THE CONSULTANT TO APPLY THOSE CRITERIA WHICH ARE APPROPRIATE AT THE TIME THE STUDY IS PERFORMED AND REPORTED. To this end, it is highly recommended that consultants maintain regular contact with the MOE.

TABLE 1: HEALTH-RELATED BACTERIOLOGICAL PARAMETERS

| Parameter | Drinking Water Quality Limit (See Note 1) | Comments |
|------------------|--|--|
| Escherichia coli | 0 | Indicators of contamination |
| Fecal coliforms | 0 | |
| Total coliforms | <5 | Indicator of possible or potential contamination |

¹ These are expressed as the plate count per 100 ml of sample. Every bacteriological sample must be submitted for analyses for all the above and the lab reports must be accompanied by a report of the chlorine residual as measured at the time of sampling.

The choice of the limits for fecal and total coliforms is based on the Drinking Water Objectives for municipal supplies found on pages 10 to 12 of the MOE publication "Ontario Drinking Water Objectives", revised 1983. This municipal standard has been adopted because individual domestic well standards impose a sampling protocol (repeat sampling at specified intervals) which cannot be reasonably applied to new test wells.

The use of E. coli is based on recent water quality limits proposed by MOE's Water Resources Branch. The presence of E. coli is more specifically indicative of fecal contamination than is the presence of fecal coliforms.

Exceedences must be explained and any re-sampling must be fully documented with respect to chlorine residual, rates and duration of pumping, etc.

TABLE 2: HEALTH-RELATED CHEMICAL AND PHYSICAL PARAMETERS

| Parameter | Drinking Water Quality Limit (See Note 2) | Comments |
|-----------------------------|--|--|
| Fluoride | 1.5 mg/L | exceedence may cause fluorosis |
| Nitrate | 10.0 mg/L | contamination indicator; exceedence may be dangerous to infants and others |
| Nitrite | 1.0 mg/L | contamination indicator |
| Nitrate <u>plus</u> Nitrite | 10.0 mg/L | contamination indicators |
| Turbidity | 1 FTU (Formazin Turbidity Units) | could indicate problems in well construction or a naturally occurring problem; may interfere with water treatment |
| Sodium | 200 mg/L (see note 3) | levels may be significant for persons with medical conditions requiring low-salt diets |
| Other parameters | (see note 4) | |

² Except for sodium, the drinking water quality limits for parameters in Table 2 are Maximum Acceptable Concentrations under the Ontario Drinking Water Objectives. The limit for fluoride is relatively new; see the MOE publication "Parameters Listing System (PALIS)", February 1991. Units of measure and, where required, conversion factors must be provided. For more information on the Objectives, refer to the MOE publication entitled "Ontario Drinking Water Objectives", revised 1983.

³ The limit for sodium is relatively new; see the MOE publication "Parameters Listing System (PALIS)", February 1991. Exceedence calls for a recommendation that the local Medical Officer of Health be notified in order to alert persons with relevant medical conditions.

⁴ See also section 4.4.1: "Raw Water Quality", above, regarding the responsibilities of the proponent or consultant to add parameters where necessary; the consultant must also provide the relevant information on any water quality limits, including those from other jurisdictions.

TABLE 3: COMMON AESTHETIC, ANALYTICAL AND INDICATOR PARAMETERS

| Parameter | General Comments | Drinking Water Quality Limit (see note 5) | Maximum Concentration considered reasonably treatable (see note 6) | Comments on Treatment |
|---------------------|---|--|---|---|
| Alkalinity | useful analytical parameter | - | - | - |
| Ammonia | contamination indicators | - | - | - |
| Background Bacteria | | | | |
| Calcium | see Hardness | - | - | - |
| Chloride | associated with salt problems | 250 mg/L | 250 mg/L | not considered reasonably treatable above the limit |
| Colour | associated with certain metals and organic substances | 5 TCU (True Colour Units) | 7 TCU | carbon filter treatment systems (see note 7) |
| Conductivity | useful analytical parameter | - | - | - |
| Hardness | taste, encrustation and reaction with soap | 500 mg/L as CaCO ₃ (see note 8) | - | water softener (see note 8) |

(continued)

TABLE 3: (continued) COMMON AESTHETIC, ANALYTICAL AND INDICATOR PARAMETERS

| Parameter | General Comments | Drinking Water Quality Limits (see note 5) | Maximum Concentration considered reasonably treatable (see note 6) | Comments on Treatment |
|-----------|--|---|---|---|
| Iron | may cause staining of plumbing fixtures and laundry | 0.3 mg/l | up to 5.0 mg/l | water softeners or manganese greensand filters |
| | | | 5.0 to 10.0 mg/l | oxidation with filtration through proprietary filter media or chlorination followed by sand or multi-media filtration |
| Magnesium | see Hardness | - | - | - |
| Manganese | may cause staining of plumbing fixtures and laundry | 0.05 mg/l | 1.0 mg/l | water softeners or manganese greensand filters |
| Methane | stimulates organic fouling; explosive if accumulates | absence (see note 9) | absence | not considered reasonably treatable |
| pH | associated with corrosion or encrustation or contamination by other substances | 6.5 - 8.5 | - | - |

(continued)

TABLE 3: (continued) COMMON AESTHETIC, ANALYTICAL AND INDICATOR PARAMETERS

| Parameter | General Comments | Drinking Water Quality Limits (see note 5) | Maximum Concentration considered reasonably treatable (see note 6) | Comments on Treatment |
|---------------------------------|--|---|---|--|
| Phenol | taste and odour, esp. after chlorination | 0.002 mg/l | 0.05 mg/l | chlorination followed by carbon filtration |
| Sulphate | laxative | 500 mg/l | 500 mg/l | not considered reasonably treatable above the limit |
| Sulphide | taste, odour, staining; determine on fresh sample | 0.05 mg/l as hydrogen sulphide | 0.3 mg/l | chlorination |
| | | | 1.0 mg/l | proprietary filter media |
| | | | 2.5 mg/l | manganese greensand filter |
| Tannins | contamination indicator | - | - | - |
| TDS (Total Dissolved Solids) | corrosion or encrustation of metal fixtures or appliances; taste; must be measured independently of Conductivity | 500 mg/l | - | requires written rationale that corrosion, encrustation or taste problems will not occur |
| TOC (Total Organic Carbon) | may contribute to contamination by other substances | 5.0 mg/l as C | 10.0 mg/l as C | carbon filtration |

(continued)

TABLE 3: (continued) COMMON AESTHETIC, ANALYTICAL AND INDICATOR PARAMETERS

| Parameter | General Comments | Drinking Water Quality Limits (see note 5) | Maximum Concentration considered reasonably treatable (see note 6) | Comments on Treatment |
|------------------|------------------|---|---|-----------------------|
| Other parameters | (see note 10) | | | |

- ⁵ Except for hardness and methane, the drinking water quality limits in Table 3 are Maximum Desirable Concentrations under the Ontario Drinking Water Objectives. Units of measure and, where required, conversion factors must be provided. For more information on the Objectives, refer to the MOE publications entitled "Parameters Listing System (PALIS)", February 1991, and "Ontario Drinking Water Objectives", revised 1983.
- ⁶ Concentrations determined by the Water Resources Branch of the Ministry of the Environment. See section 4.4.2: "Treatment Systems", above.
- ⁷ Higher, iron-related colour may be removed by manganese greensand treatment; however, the nature of the constituents causing excessive colour must be determined. See section 4.4.2: "Treatment Systems", above.
- ⁸ Generally, water with a hardness value of more than 300 mg/l is considered "very hard". The Ontario Ministry of the Environment publication entitled "Ontario Drinking Water Objectives", revised 1983, states on page 41 that waters with hardness "in excess of 500 mg/l are unacceptable for most domestic purposes". A maximum treatable value is not available.
- ⁹ Although the Ontario Drinking Water Objectives list a Maximum Desirable Concentration of 3.0 litres per cubic metre for methane, there are significant difficulties in sampling and analysis. Absence is therefore required.
- ¹⁰ See also section 4.4.1: "Raw Water Quality", above, regarding the responsibilities of the proponent or consultant to add parameters where necessary; the consultant must also provide the relevant information on any water quality limits, including those from other jurisdictions.

**TECHNICAL GUIDELINE
FOR
ASSESSING THE POTENTIAL FOR GROUNDWATER IMPACT
AT DEVELOPMENTS SERVICED BY
INDIVIDUAL SUB-SURFACE SEWAGE SYSTEMS
IN NON-DESIGNATED AREAS**

This document outlines the interim position of the Ministry of the Environment (MOE). It is intended to guide the Ministry review of planning documents, and to assist in providing direction to municipalities and consultants on the requirements of MOE in land use planning. This guideline pertains to the Ministry of the Environment mandate only. Other agencies may have requirements over and above the MOE mandate.



**Environment
Environnement**

JULY 1992

1.0 STATEMENT OF PRINCIPLES

This guideline describes the Ministry of the Environment's (MOE) position and requirements regarding the assessment of groundwater impact potential for subdivision developments to be serviced by individual sub-surface sewage systems. This guideline applies only to those areas of the Province which have not been designated under Notice 3/87 (attached) as subject to Ministry Policy 15-08. In areas so designated, the undertaking must comply with the requirements of Policy 15-08 and its associated guidelines.

The guideline reflects the Ministry's experience with development utilizing individual sub-surface sewage systems, and emphasizes the need to minimize the potential for adverse groundwater impacts resulting from the use of individual subsurface sewage systems.

It is presented with the understanding that the use of individual subsurface sewage systems must be justified. This justification includes an evaluation of alternative types of servicing. The Ministry encourages municipalities to plan for environmentally appropriate servicing infrastructures by undertaking comprehensive, large-scale assessment of groundwater and surface water resources (please refer to "MOE Guideline on Planning for Sewage and Water Services").

The purpose of the guideline is to protect the environment and public health by ensuring that development utilizing individual subsurface sewage systems proceeds at a density and scale which will not result in or cause degradation of groundwater resources in exceedence of acceptable limits. Compliance with acceptable limits shall be demonstrated through a prediction of the development's cumulative nitrate impact on the groundwater resource at the development boundary. It is intended to encourage the assessment of the potential for degradation on the basis of a technically based and defensible evaluation of the proposal.

2.0 OBJECTIVES

The objectives of this guideline are as follows:

- a) To provide technical guidance to professional hydrogeological consultants in assessing the potential for unacceptable groundwater impacts resulting from the use of individual subsurface sewage systems.
- b) To ensure that proposals are submitted with the required technical support to allow the Director to either support the undertaking, designate the undertaking under Notice 3/87 (thus requiring an assessment in compliance with Policy 15-08 and its associated guidelines) or to recommend against approval.

3.0 APPLICATION OF THE GUIDELINE

This guideline applies to the combined or total impact of a plan of subdivision of more than five units with adjacent individual subsurface sewage systems in areas which have **not** been designated under Notice 3/87 (attached). Application to plans of subdivision involving five or fewer units shall be at the discretion of the Regional Director. Municipalities are also encouraged to implement the provisions of this guideline in the consideration of multiple consents. Municipalities should secure qualified professionals to act on their behalf in reviewing reports submitted to them within the scope of the requirements of this guideline.

This guideline **does not apply** to the following:

- Large Subsurface Sewage Disposal Systems as defined in Notice 3/87 (attached);
- the assessment of existing impacts of isolated individual residential units or interference between individual home systems on neighbouring lots within a subdivision;
- applications for approval of subsurface systems which are a replacement due to the failure (i.e., hydraulic load, age, etc.) of the original system.

(Note: Where failure has resulted in unacceptable contaminant discharges, it should be handled in accordance with MOE Policy 15-10, "The Resolution of Groundwater Quality Interference Problems").

4.0 DESIGNATED AREAS UNDER NOTICE 3/87

Under Notice 3/87, the Director under Part VIII of the Environmental Protection Act or the MOE Regional Director may designate a municipality or an area of a municipality as subject to Policy 15-08 ("Incorporation of the Reasonable Use Concept Into MOE Groundwater Management Activities").

In areas designated under Notice 3/87, the impact assessment must comply with the requirements of Policy 15-08. Detailed information on the application of Policy 15-08 to on-site sewage systems may be found in the "Guideline for Applying Policy 15-08 to Large Subsurface Sewage Disposal Systems".

It is important to note that even though an applicant may meet the requirements of Section 5, the Director reserves the right to require more detailed assessment or to designate any site or area of a municipality as subject to Policy 15-08 under Notice 3/87.

The likelihood of this occurring is greater where:

- a) conditions outlined in Section 5.1 are not met;
- b) the development proposed has a higher density than previous development proposals in the municipality; or
- c) the scale of the proposal is such that an increased degree of assurance is appropriate.

When these environments are encountered or these undertakings proposed, the Director's support may be conditional upon the establishment of monitoring programs and financial assurances as outlined in the "Guideline for Applying Policy 15-08 to Large Subsurface Sewage Disposal Systems".

Although the Director may support a proposal involving individual subsurface sewage systems and permit their installation, responsibility for failure of the system(s), for correcting the damage to adjacent properties, or for the construction of new sewage systems is not assumed. This is the responsibility of the proponent/owner of the system.

It should be noted that the use of the Ontario Drinking Water Objective for nitrate (10 mg/L) as the maximum acceptable background concentration is applicable only in those areas not designated under Notice 3/87. The use of this limit is for the purposes of the assessments described herein only. Should the area of the development be designated under Notice 3/87, the definition of **natural** background nitrate concentrations must be in accordance with Policy 15-08 and associated guidelines.

5.0 GROUNDWATER IMPACT ASSESSMENT IN NON-DESIGNATED AREAS

5.1 General Evaluation

Approval Authorities should only consider support for an application for development in non-designated areas involving individual subsurface sewage systems where the following has been demonstrated:

5.1.1 General Considerations

- a) the use of private services has been defended to the satisfaction of the MOE Regional Director in accordance with the "MOE Guideline on Planning for Sewage and Water Services";
- b) the site has been demonstrated to comply with the requirements of O.Reg. 374/81 and related policies and guidelines; and

- c) similar developments in that area or that environment have functioned properly without failure.

5.1.2 Hydrogeologic Considerations

- a) background groundwater nitrate levels do not currently exceed the Ontario Drinking Water Quality Objective (10 mg/L); and
- b) the area is not obviously hydrogeologically sensitive (e.g. not karstic or fractured bedrock exposed at surface or covered by very thin or permeable overburden).

5.2 Three-Step Assessment Process

Every proposed development involving individual subsurface sewage systems requires an assessment of the groundwater impact potential. The purpose of the assessment is to ensure that the cumulative effluent discharges from individual subsurface sewage systems will have a minimal effect on groundwater resources or the present or potential use of the adjacent property. This guideline does not define a precise methodology for determining the expected level of impact. It does set out the major considerations which should be included in a defensible assessment of the impact potential.

The assessment involves a three step process (see Table 1). The need to advance to the next step depends upon the conditions defined at the previous step. The process is dependant upon first satisfying the general requirements defined in Section 4.0 and Section 5.1. Once these requirements are satisfied, the Ministry is willing to consider the use of individual subsurface sewage systems in non-designated areas. The first step involves a definition of the development's minimum lot size. If the minimum lot size is smaller than that defined in Section 5.4, then the assessment must progress to the second step and possibly third step.

The second step of the assessment process involves evaluating the relationship between the individual subsurface sewage systems and the groundwater resource. Where it can be demonstrated that the systems are isolated from groundwater resources then there may be no need to assess potential contaminant loadings. Where this isolation cannot be demonstrated, it will be necessary to progress to the final step of the assessment which involves a detailed examination of contaminant loading to groundwater resources.

MOE will return to the proponent or consultant any incomplete reports submitted in support of development applications for more than five lots utilizing on-site systems.

5.3 Fundamental Considerations

The impact assessment shall be conducted under the following fundamental considerations:

- No use for groundwater other than as a drinking water supply shall be considered for any groundwater resource. The only exception will be for reasonable uses which involve water quality more stringent than defined by the Ontario Drinking Water Quality Objectives (for example: providing baseflow to a cold water trout stream); and
- groundwater impact predictions shall be calculated for development site property boundary.

Additional considerations which applicants should include in the overall assessment of the use of individual subsurface sewage systems include:

- the subsurface discharge of contaminants into surface water; and
- the optimum location and orientation of leaching beds.

5.4 Step One: Lot Size Considerations

For subdivisions where the lot size for each private residence in the subdivision is one hectare or larger, the risk that the boundary limits imposed by this guidelines may be exceeded by individual systems is considered acceptable in most cases. It is assumed that dilution with infiltrating precipitation on a one hectare lot and denitrification will be sufficient to reduce the nitrate nitrogen to an acceptable concentration in groundwater below adjacent properties.

5.5 Step Two and Step Three: Impact Assessment Considerations

Where proposed lot sizes are less than one hectare, the proponent is responsible for assessing the potential risk to groundwater resources through an evaluation of the migration of the septic system effluent and a definition of the hydrogeologic system. A confident definition of the most probable contaminant migration pathway must involve a standard hydrogeologic assessment of the site. This assessment must consider the entire site as well as surrounding lands.

The determination of the potential for impact of the groundwater resource will be dependant upon definitions of:

- the degree of isolation between the proposed septic systems and the resource (Step Two); and
- the expected attenuation of contaminants within the subsurface (Step Three).

5.6 Step Two: System Isolation Considerations

A detailed contaminant loading assessment, as described in Section 5.7, may not be required where it can be demonstrated, on the basis of a physical hydrogeological evaluation, that septic effluent will not enter an existing or potential supply aquifer. Such assessments will normally include an evaluation of the potential contaminant flow paths involving the following:

- a) the most probable flow path for septic effluent must be evaluated and this definition defended by hydrogeologic data and information obtained through a test pit, auger hole and/or test drilling program; and
- b) the flow path evaluation must define the most probable base of the contaminant plumes (for example a hydraulic or physical boundary).

Note that this assessment does not necessarily involve a prediction of expected plume geometries. Rather, it is intended to provide a confident definition of the most probable contaminant receivers.

The potential for isolation must be assessed on a site specific basis and may involve assessments of geologic and/or hydraulic boundaries (note that the "site specific basis" will likely involve lands beyond the actual development).

In some cases, it may be necessary to demonstrate isolation from sensitive surface water environments. Wherever there is a potential for surface water impact, the proponent should contact the MOE Regional Surface Water staff.

5.7 Step Three: Contaminant Attenuation Considerations

Where it cannot be demonstrated that the systems are isolated from all potential groundwater resources, a detailed assessment of the potential risk to groundwater resources is required. The hydrogeologic study must predict the cumulative impact potential of the individual subsurface sewage systems on the groundwater at the site (subdivision) boundary.

Please note that this hydrogeologic study is not the assessment described in Chapter 6, Chapter 8 (Article 8) or Chapter 14 (Article 8) of the "Manual of Policy, Procedures and Guidelines for On-Site Sewage Systems". The assessments described in the Manual are necessary to determine the hydraulic capability of the soil to disperse effluent from a leaching bed on a continuous basis. They do not take into account the potential for contamination of the groundwater. Note, also, that this hydrogeologic study is not the assessment described in "Guideline for Water Supply Assessment for Subdivision Developments on Individual Private Wells". However, it is recommended that this impact prediction not be conducted in isolation of the requirements of these and other related guidelines.

5.7.1 The Contaminant Source

In assessing the contaminant source, the Ministry will accept the following considerations and assumptions:

- a) **The Critical Contaminant** - In calculating the predicted cumulative impact of the individual subsurface sewage system at the site boundary for systems treating **only** domestic/household sewage, in most cases total nitrogen converted to nitrate is considered as the Critical Contaminant.
- b) For the purposes of predicting the potential for groundwater impacts, average effluent flow values corresponding to 1000 L/day per dwelling unit for residential development.
- c) In dealing with domestic waste effluent, unless there is specific evidence to the contrary, a value of 40 mg/L for nitrate nitrogen in the discharge from a Class 4 or Class 6 System treating domestic/household sewage.
- d) For industrial/commercial development with average daily flows less than 4,500 L/day per system, assume that the sewage system effluent has a nitrate concentration of 40 mg/L as N. The sewage will consist of domestic wastes only. No commercial or industrial process wastewater is permitted. To predict the sewage system flows from industrial/commercial development, refer to the MOE Manual of Policy, Procedures and Guidelines for On-site Sewage Systems (Appendices 9.3.1 and 9.3.2). Note that the Ministry's position is that all hydrogeology reports prepared for industrial/commercial uses on on-site systems must establish the total allowable sewage volume generation from the entire development on the basis of not creating predicted off-site impacts exceeding 10 mg/L nitrates. Each lot is then allocated its share of this total, with no lot allocated more than 4,500 L/day.

5.7.2 Contaminant Attenuation

- a) In assessing contaminant attenuation, only dilution will be accepted by the Ministry as a quantifiable attenuation mechanism for nitrate.
- b) Dilution models may involve dilution with infiltrating water and mixing with groundwater within the flow path of the contaminant plume. That is, areas upgradient of the individual subsurface sewage systems or hydraulically isolated from them, cannot be used in the dilution assessment.
- c) Estimates of infiltration must be scientifically defended with site specific soils data.

- d) Complete mixing of groundwater and sewage effluent only within the flow path (three dimensional) of the contaminant plume may be assumed in the model. Portions of the aquifer not involved in the effluent migration cannot be used in the mixing models. For instance, lands obviously upgradient of the individual subsurface sewage systems are not involved in the dilution process. Mixing models must be suitably defended and based on proven hydrogeological principals.
- e) All models and/or calculations must involve site-specific measurements of background nitrate concentrations within the receiving aquifer.
- f) Dilution processes within fractured media are poorly understood, extremely difficult to predict and shall, therefore, be considered insignificant. Adequate dilution must be available within on-site porous media.
- g) The volume of sewage effluent may be used in mass balance calculations.
- h) Mathematical (computer) models may be used to assess the impact potential. The selection of model software will be left to the proponent. However, because of the great variety of software available, the Director will ask that proponents provide data in a form that can be readily reviewed by the Ministry. The information that may be required includes the code, its validation and how the code limitations and assumptions affect the results. All model simulations must include appropriate sensitivity analyses.

Note that by accepting the use of dilution models, it is not the intent of MOE to promote the development of areas with high infiltration rates (sandy overburden deposits for example). Such areas may prove to be quite sensitive to nitrate impacts for reasons unrelated to infiltration rates. It is the intent of MOE to have only those dilution models used which are reasonable and can be defended on a site specific basis. Where the Ministry has concerns regarding the reliability of the predicted impact based on the dilution model, consideration may be given to designation under Notice 3/87.

5.8 Additional Research

The Ministry recognizes that the assumptions required for allowing a predicted level of 10 mg/L to be used as a boundary target criteria, for exempting lots of one hectare, for using nitrate as the critical contaminant etc., may not be technically supported in every case. The Ministry recognizes that as research continues, information and technologies may become available which warrant minor or substantive revisions of this guideline.

6.0 IMPLEMENTATION

MOE staff will implement this guideline through comments and advice supplied to municipalities, the public, and the approval Authority on planning documents circulated under the Planning Act.

For development applications (official plan amendments, plans of subdivision or condominium) involving more than five lots utilizing individual subsurface sewage systems, the approval Authority should ensure that an impact assessment has been completed in accordance with this Guideline which demonstrates that the impacts on ground and surface water of the proposal will be within acceptable limits.

The approval Authority should include a condition of final approval which specifies that the MOE receive a copy of a fully-executed subdivision/condominium agreement or other suitable development agreement between the municipality and the developer. The agreement should require that the recommendations of the impact assessment report as approved by MOE (or its agents) be implemented.

For industrial or commercial development applications involving development equivalent to more than five private residences, the approval Authority should ensure that a municipal by-law is enacted for the subject lands restricting the industrial/commercial uses to "dry industrial/commercial uses".

7.0 DEFINITIONS

Individual Subsurface Sewage System:

An on-site Class 4 or Class 6 sewage system regulated by Ontario Regulation 374/81 under the Environmental Protection Act.

Director:

Either the Director under Part VIII of the Environmental Protection Act or the Regional Director of the MOE.

Dry Industrial/Commercial Uses:

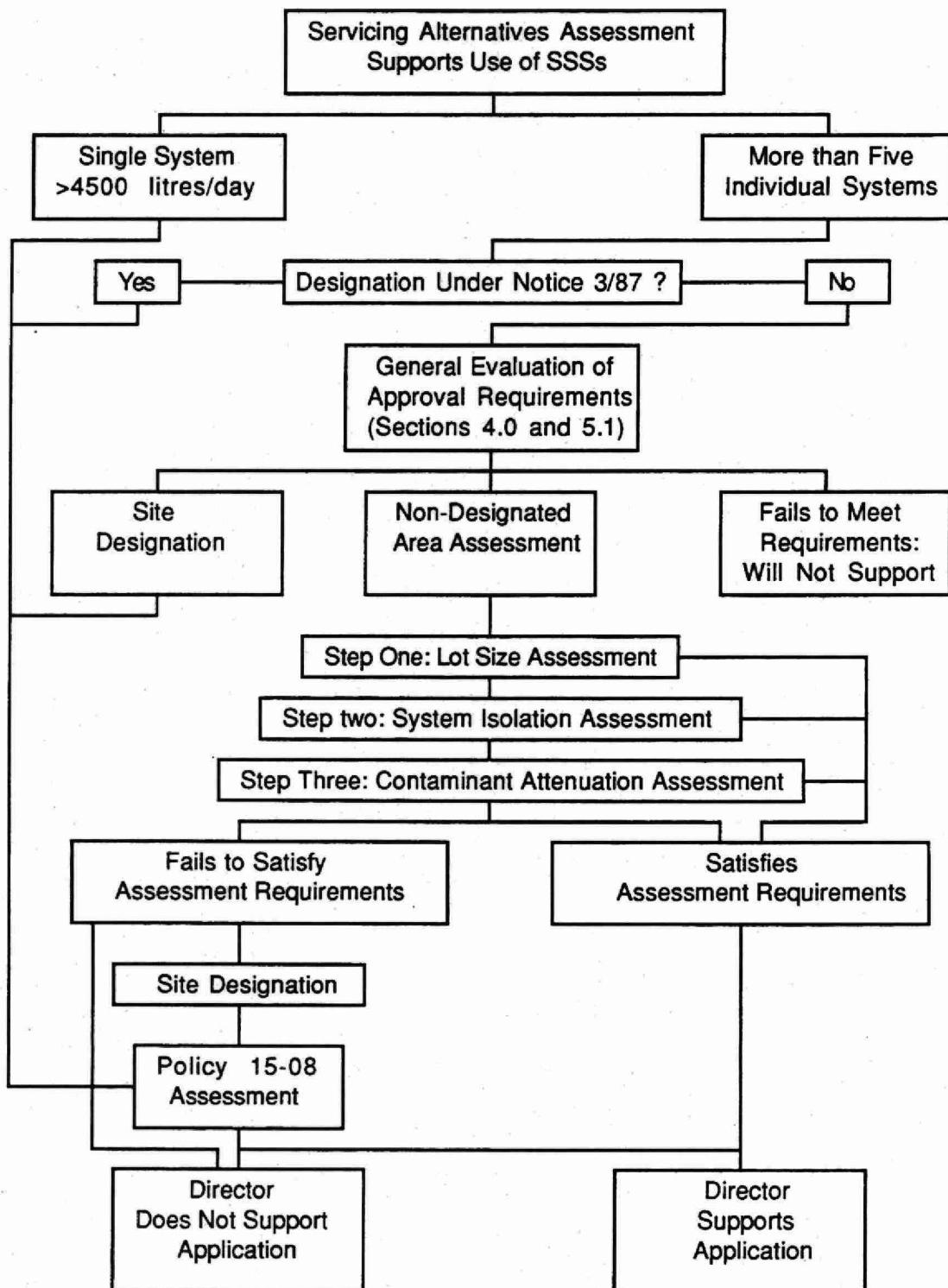
Those in which only the disposal of the domestic waste of employees is permitted and treated. No industrial liquid wastes, wash or cooling water or process waste is allowed.

8.0 REFERENCE DOCUMENTS

Other documents that should be used in conjunction with this Guideline include:

- MOE Policy 15-08: "The Incorporation of the Reasonable Use Concept into the Ground Water Management Activities of the Ministry of the Environment"
- Guideline for Applying Policy 15-08 to Large Subsurface Sewage Disposal Systems (Working Group V, Water Management Steering Committee);
- Guideline for Water Supply Assessment for Subdivision Developments on Private Wells (Ministry of the Environment);
- Advice to Applicants and to Consultants in Preparing Reports for Proposed Landfill Sites (Working Group V, Water Management Steering Committee);
- Manual of Policy, Procedures and Guidelines for On- site Sewage Systems (Ministry of the Environment);
- Class Environmental Assessment for Municipal Sewage and Water Projects (Municipal Engineers Association);
- MOE Class Environmental Assessment Document, Expansion or Upgrading of an Existing Sewage or Water System (Ecologistics Limited); and
- MOE Guideline on Planning For Sewage and Water Services (Ministry of the Environment).

TABLE ONE
ASSESSMENT OF SUBSURFACE SEWAGE SYSTEMS (SSSs)



Note that at any time during the process, the Director may elect to Designate the undertaking/area under Notice 3/87.



Ministry
of the
Environment Ministere
de
l'Environnement
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July 15, 1987

NOTICE 3/87

TO: Directors, Part VII, Environmental Protection Act
RE: PROTECTION OF GROUND WATER QUALITY

Ministry of the Environment Policy No. 15-08 "Incorporation of the Reasonable Use Concept Into MOE Ground Water Management Activities" came into effect April 25, 1986. A copy of the Policy and the referenced document entitled "The Incorporation of the Reasonable Use Concept Into the Ground Water Management Activities of the Ministry of the Environment" - September 1986 are appended for your information.

This policy and its appended document establish the basis for determining the reasonable use of ground water on property adjacent to sources of contaminants, and addresses the levels of contaminant discharge considered acceptable by the Ministry. The document establishes procedures for the determination of what constitutes reasonable use of ground water.

It will be noted that the document and the policy are considered to apply to large subsurface sewage systems (i.e., systems regulated by O.Reg. 374/81, under Part VII Environmental Protection Act).

The fundamental principles contained in Policy 15-08 and its attached document are already embraced in the "Manual of Policy Procedures and Guidelines for Private Sewage Disposal Systems" (Chapter 8 and Chapter 14), and only formalize those concerns

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for the purpose of implementing the Ministry's overall water quality management program as defined in the MOE publication "Water Management-Goals, Policies, Objectives and Implementation Procedures of the Ministry of the Environment".

As you are all aware there is no definition of a large subsurface sewage disposal system contained in either the Environmental Protection Act or O.Reg. 374/81. The Regulation does however contain a definition for a Class A system, and Chapter 14 of the "Manual of Policy, Procedures and Guidelines for Private Sewage Systems" does provide guidance respecting large systems.

For the purposes of implementation of Ministry Policy 15-08, we have defined Large Subsurface Sewage Disposal System as a subsurface sewage system that:

- a) has an average daily flow greater than 4500 L/d;
- b) serves more than five private residences/dwelling units, with a communal subsurface sewage system; or
- c) serves more than five private residences/dwelling units with adjacent individual sub-surface sewage systems and which will be located in a municipality or an area of a municipality designated by the Part VII Director, and/or the Regional Director of the Ministry of the Environment; or
- d) serves any institution, industrial or commercial establishment;

but does not include a sub-surface sewage system that:

- (i) serves an institutional, industrial or commercial establishment with an average daily flow less than 4,500 L/d whose waste water consists solely of sewage of domestic origin, which is human body waste, toilet or other bathroom waste, and liquid or water-borne culinary sink waste.

Clause c) above permits either the Part VII Director or the MOE Regional Director to designate a municipality or an area of a

municipality as subject to Policy 15-08. In such designated areas, any subdivision of more than five private residences/dwelling units with adjacent individual sub-surface sewage systems will be subject to Policy 15-08. Prior to the designation of a municipality or an area of a municipality under Clause c) the respective Directors or their staff should consult with each other in order to establish/ clarify the reasons for the designation and to ensure there is no misunderstanding or confusion.

The purpose of this Notice is to provide all Part VII Directors with guidelines respecting the implementation of Ministry Policy 15-08. The suggested implementation procedures are as follows:

1. In the "Manual of Policies, Procedures and Guidelines for Private Sewage Disposal Systems" it is recommended that applicants proposing large systems undertake to have a pre-consultation meeting with the Part VII Director in order to establish fundamental design criteria etc. for the proposed works. When such meetings are held, Policy 15-08 and its appended document should be brought to the attention of the applicant and the applicant should be requested to address the concerns of the policy and document. As a first step the applicant should confirm the applicability of the policy with the appropriate MOE Regional Office. The decision of the MOE Regional Office and any subsequent assessment of ground water contamination etc. should be included in the applicant's submission to the Part VII Director.
2. Where the MOE Regional Office has determined that Policy 15-08 applies to a specific application, the report and assessment proposed by the applicant's consultant should be submitted to the MOE Regional Office by the Part VII Director for review and comment back to the Part VII Director.
3. When a Part VII Director receives an application for which no pre-consultation meeting has been held or the proponent has not been advised of Policy 15-08, it is recommended that the application be forwarded to the MOE Regional Director for a determination as to the applicability of

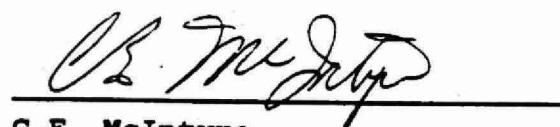
the policy. Where the MOE Regional Office determines that the policy is applicable, the Part VII Director should so advise the applicant in order that the required assessment may be prepared. This assessment should be forwarded to the MOE Regional Office by the Part VII Director for review, comment and acceptance/rejection.

4. When an MOE Regional Office cannot support the assessment of the applicant's consultant regarding the impact of the proposed undertaking the applicant should be so advised by the Part VII Director. Should the applicant choose to appeal the decision MOE Regional staff will act as expert witnesses on behalf of the Part VII Director at the Environmental Appeal Board Hearing.

Should you have any questions respecting the preceding or the attached we would request that you contact either the Technical Support Manager of the MOE Regional Office or, Mr. Brian J. Cooper, On-Site Sewage Systems, (416) 323-4503.



W.R. Balfour
Director
Environmental Approvals and
Land Use Planning Branch



C.E. McIntyre
Executive Director
Approvals and Engineering

BJC/lh

cc: MOE Regional Directors
MOE Managers - Abatement
MOE Managers - Technical Support
MOE District Officers
Regional Municipalities
Chairman, Local Boards of Health, Medical Officers of Health, Health Unit Director, Health Unit Officers and Sub-officers, Ministry of Health - Public Health Branch Environmental Health Department - Ryerson Polytechnical Institute.

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